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THE

GARDENERS' CHRONICLE

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS.

(*ESTABLISHED IN* 1841.)

VOL. XXV.—THIRD SERIES.

JANUARY TO JUNE, 1899.

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143139

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THE
Gardeners' Chronicle
SATURDAY, JANUARY 7, 1899.

ROME.

ON the first morning after my arrival in Rome, when I looked out of the window on the fourth storey of a tall house in the Piazza di Spagna, I was very much surprised to see a huge Eucalyptus tree looking in upon me, and quite overshadowing the room, and also towering towards the sky, and far above over the house. It happened to be one of the largest in the place, and I had seen them in numbers all along the road as we came in by the railway, but I did not expect such an apparition as this in the heart of the city. I soon found out that Eucalypti are grown here in large numbers, and the belief in their efficacy for good must be very general, for you meet with them everywhere.

A few days after this I was so fortunate as to get an introduction to Cavaliere Palice, Direttore dei Pubblici Giardini di Roma, and I was glad of it, because I wished, among other things, to be enlightened by him about these Eucalypti from two or three different points of view. So far as I remember, one of the principal things which he said to me was, that the best species all round for common use is E. resinifera, and that it is much to be preferred to E. Globulus; or, indeed, to any other. I do not remember to have heard this before, though I know that in point of hardiness some few are better than the rest. E. resinifera, he says, is quite the most valuable of them all, if you can be content with it growing slowly, and also with it never arriving at the height which some others can reach. E. Globulus is far behind it in point of trustworthiness, though it quickly makes a great show and promises wonders. No doubt this is the very reason why E. resinifera has much the best character of the two for general purposes. Slow and sure, is its motto, as it is of many other good things. Cavaliere Palice especially emphasised one point: a Eucalyptus tree hates wind, and it stands frost very much better. The reason, he said, why the large tree in the Piazza di Spagna, to which I have referred above, is doing so well, is merely because it is sheltered from the north, and no strong blasts can affect it; but, he added, if you are at all interested in the question of these Eucalypti, you should visit the Trappist Fathers at the Monastery of St. Paul-trois-Fontaines, and hear all which they have to tell, and see their enormous grove.

THE EUCALYPTUS GROVE AT TRE FONTANE.

As there is no great difficulty about this expedition, I availed myself of the first fine day to take it. But I may as well say here, that these Trappist monks have some peculiarities of their own. They are strict vegetarians, and would not touch meat on any account. But they differ from other religious bodies principally in the way in which absolute silence is enforced among themselves: when one monk happens to come across another monk in the course of ordinary life he has nothing whatever to say to him, by the rules of his Order, except "*Memento mori.*" I could not but think, as I was walking towards the Monastery, which is about a mile or a mile-and-a-quarter beyond St. Paul's Church, which itself is some little way outside of the walls of the city, that I must be going to a very odd place for enlightenment about horticultural matters, if they are likely to treat me in that sort of way. But I soon found out on arrival that all this is provided for, and that some two or three of the Fathers, of whom there are twenty-five in the place, are always told off, whether temporarily or in perpetuity I do not know, for communication with the outside world, without which, of course, no business can be carried on. One of these select few kindly offered his services to me, and during a rather long morning he showed me everything there was to be seen, and told me everything I wanted to know. I did not find that his tongue had suffered in the least from disuse, but he rattled on as though glad, perhaps, of the opportunity for talking to a fellow-man.

Let me just give a few words of description of this extraordinary place, which is taken from Mrs. Jameson's work on *Sacred Art*. She wrote some years ago, that "in all the melancholy vicinity of Rome, there is not a more melancholy spot than the Tre Fontane. A splendid monastery, rich with all the offerings of Christendom, once existed there; the ravages of that mysterious scourge of the Campagna—the malaria—have rendered it a desert. Three churches and some ruins still exist, and a few pale monks wander about the dismal confines of the hollow in which they stand. In winter, you approach them through a quagmire; in summer, you dare not breathe in their pestilential vicinity, and yet there is a sort of dead beauty about the place—something hallowed as well as sad which seizes on the fancy."

But all this in recent years has been altered for the better by the introduction of Eucalyptus trees from Australia. It is a fact that the monks live now during the greater part, if not the whole round, of the year where once they were quite unable to live at all; certainly, they have had a unique experience in this matter, from which others may profit. They cultivate only some six or seven species of Eucalyptus in all, and out of the number my informant declared that in his opinion E. Globulus and E. resinifera are the two best; one is as good as the other, he said, and E. Globulus makes such a fine tree—but that is, I am sure, from the point of view of a resident in Italy. Where conditions are so favourable as they are here to the growth of Eucalypti, it may be difficult to choose between these two; but where greater difficulties are known than is the case here, the value of E. resinifera will very much exceed the value of E. Globulus, which in England is worth very little indeed. At any rate, E. resinifera is very high up, and comes second in the affections of the monk. He told me one thing which I had never heard before, and which has some little interest about it.

The origin of the marvellous growth of these trees in and about Rome was the following. When the Œcumenical Council was held here in the year 1869, some of the Australian bishops who took part in it saw that they could benefit Italy by sending trees from Australia, and they promised that, in their return to their own land, they would forward a consignment of them. The bishops were as good as their word, and the Eucalypti arrived in due course of time, and were well taken care of at the monastery. Now they are grown from seed by hundreds and thousands, but at first some young specimens from Australia were all they had to depend upon. The grove of Eucalypti—or, as it might be called, the forest—stretches far into the Campagna. I asked my friend if he had any idea of the extent of the area which the Fathers had under cultivation for this purpose, and his answer was, that he did not know at all; but he said "I can tell you something—we have planted to our certain knowledge 200,000 of these trees near to and about the monastery;" and I should be very unwilling to dispute the assertion. The grove seems to stretch in and on where these huge giants are growing; they tower up already to the height of some 75 or 80 feet above the ground, and no one can tell what they will eventually come to, or even what they will come to in a term say of twenty or twenty-five years. I said to my guide, "I have heard of these trees attaining to the height of 200 or 300 feet—will yours ever do the like?" He replied, "I have heard of their attaining to a height of 500 or 600 feet, but I do not think they will do that." Nevertheless, I believe he has very great expectations about their future, and there may always be a miracle in reserve to assist them if they do not get on well enough of themselves. The whole place is redolent of the miraculous, according to common idea. The scene was weird and strange in the very extreme. One felt carried out of England, and out of Italy also, and as though for a few hours a visit were being paid to the southern hemisphere itself. Utter silence seemed to reign in the place, and the very birds themselves might have been Trappists so far as any songs from them are concerned; but I fear there is a deeper reason for the intense silence than this—they think very little about the balance of Nature in this part of the world, and birds of all sorts are exterminated in a very ruthless way.

The huge trunks, smooth in some places, and with bark hanging down in others, the sort of sickle-shaped, glaucous foliage, the blossoms, which are unlike any others I have seen, formed a strange sort of surrounding with which the monks are very congenial, but which is as unlike an English landscape as anything could be—gloomy, severe, unattractive are the sort of adjectives I should use with regard to it, and I should be very sorry to exchange our delightful English woods for an Australian grove of Eucalypti.

I wanted to know the girth of one of these extraordinary trees, and the monk declared it to be, after careful measurement, between 4 and 5 feet. A word may perhaps be in place here about the cultural directions, of which my companion was full. Monks have for centuries past been famous as gardeners, and I think my friends of the Monastery of the Three Fountains bring no disgrace to their order.

As I have said above, hundreds and thousands of Eucalypti are now raised from seed. I was privileged to go into a large glass building (or shabby, tumble-down greenhouse it might be called), and there it was pointed out to me how numbers of young Eucalypti were coming on in a most flourishing way. This was a sort of second stage of their existence, and the rules which are laid down for their previous history are certainly sensible enough.

According to the monks, the seed is to be sown thinly in September or October, in boxes filled with common soil, light, and mixed with a little decomposed manure. It is to be very lightly covered over with soil, and watered with great precaution. It is to be kept just moist, and to be deprived of light for some days till germination has taken place. It is to be very carefully guarded against frost for the first winter; in the ensuing spring the plants are to be stationed at distances of about 1½ yard from each other, and with a southern exposure. They are to be watered abundantly every week during the following summer, and specially so if the ground in which they are planted is not naturally humid, &c.

I think you will say that these instructions are sensible enough, and the monks can now point to

200,000 witnesses to the desirability of the practice which they enjoin. I suppose that this Trappist monastery will be a kind of emporium for Eucalypti for all Italy, and, indeed, for Europe also, so far as they are anywhere required. But in some respects the monks are too sanguine to be believed; they attribute some very efficacious virtues to their Eucalyptus-oil. It is, in their opinion, an elixir which stands quite by itself. Their flourish of trumpets goes on in the following strain:—"Il est éminemment hygiénique et febrifuge; c'est aussi un antiseptique remarquable, un vulnéraire, un cicatriciel, très énergique un désinfectant préferé par beaucoup de praticiens a l'acide phénique dont il n'a pas l'âcreté, ni l'odeur repoussante—il est utilement employé dans les affections aiguës et chroniques du larynx et des bronches; la tuberculose pulmonaire, les fièvres de toutes nature; les expectorations fétides, &c." But all this must be taken for what it is worth, and "credat Judæus" expresses the sort of feeling which is entertained by many who are able to judge.

They are on much more solid ground when they descant on the efficacy of their trees for draining purposes, and their self-glorification can be contradicted by no one when they say, "Nous avons transformé ce desert malsain en une oasis, et depuis longtemps nous y habitons toute l'année."

A little notice hangs up proudly in their bureau, or whatever it may be called, and which runs to this effect: "Il a été decerné au Frère Gildas pour l'introduction de l'Eucalyptus à Rome une médaille de seconde classe dans la séance publique du 7 Mai, 1875. Le Président Drouyn de Lhuys, Société d'Acclimatation." *H. Ewbank* (*Rev.*), *Rome*, *Christmas Eve*, 1898.

(*To be continued.*)

NOVELTIES OF 1898.

An annual review of the novelties and re-introductions of plants of the past year is always interesting. For some years past the chief novelties in flowering and ornamental greenhouse and stove-plants have been furnished by the hybridist at home, and the plant-collector who, in his search for Orchids often wandered in lands replete with interesting new plants, but very rarely sent one home unless it were an Orchid. In the immediate past, however, our suggestions seem to have been acted on, especially by Messrs. F. Sander & Co., with the result that at the last great Quinquennial show at Ghent, and on other occasions in Great Britain, they have made displays of new stove and greenhouse-plants, and especially of Palms, imported by them, which have been very gratifying to the plantsman. Some of these new plants have had to be provisionally named, and the names under which they are now known may not withstand the test of comparison with known species in herbaria, but that is of little consequence to the gardener, for they are new to gardens.

The Orchids.

The hybrid Orchids still continue to more than divide the interest of the Orchid specialist with the fine varieties of previously-known imported species. But as with dress, so with flowers, fickle fashion holds unreasoning sway. Hence the great tribe of Cypripediums, which, until quite recently absorbed the greatest interest, have given place to the showy and useful hybrid Cattleyas, Lælias, and Lælio-Cattleyas, until some new combination can be got to give them a fresh interest.

In the matter of fine varieties of imported species, they more than hold their own in point of value, as witness the peculiar form of Cattleya labiata for which Messrs. Protheroe & Morris by fair competition succeeded in getting 130 guis. about a month ago; and the evidence that when any portion of a pedigree plant is on sale, its value is found to have risen rather than fallen. In every branch of Orchid-culture we still look to the fine collection of Sir Trevor Lawrence, Bart., of Burford, under the skilful management of Mr. W. H. White, as the keystone of the Orchid interests in Europe.

Last year, if we may say so, the principal novelty in Sir Trevor Lawrence's collection was the gigantic Grammatophyllum speciosum, well known to science; and this year the equally noble, and still more beautiful, Eulophiella Peetersiana, producing its gorgeous spike of rose-purple flowers at Burford for the first time, is a parallel case. Chief among the many fine things among those flowered at Burford during 1898 must be noted the remarkable Stanhopea Rodigasiana, which not only displayed a very singular departure from the general run of the genus, but demonstrated that a Stanhopea could still command a First-class Certificate; the blood-red Dendrobium sanguineum, which had been less perfectly flowered the previous year; the pretty and distinct natural hybrids Miltonia × Binoti and M. × leucoglossa; and among the Burford-raised hybrids, Cypripedium × Olenus, Burford variety, the largest and handsomest of the C. bellatulum crosses; C. × argo-Morganiæ, Dendrobium × formoso-Lowi; and two bright additions to the Burford hybrid Calanthes viz., C. × labrosior and C. × revertens; while among the many botanical novelties the singular Cirrhopetalum appendiculatum is specially interesting as giving the first instance of its section to flower under cultivation; also the singular Masdevallia ventricularia, and other new species.

Baron Sir H. Schroder, who still maintains his great interest not only in his own magnificent collection, but in all that pertains to Orchids and Orchid growing, has flowered many superb things, especially among the Odontoglossums, and among those which have received Certificates at the Royal Horticultural Society are Odontoglossum crispum Baroness Schroder, which is one of the finest of crimson-blotched varieties; O. c. Princess Christian, a noble flower; O. × elegantius Baroness Schroder, a bright and elegant form of the pretty O. Pescatorei, natural hybrid; and the new Sobralia Sanderiana, imported by Messrs. F. Sander & Co.

Elijah Ashworth, Esq., of Harefield Hall, Wilmslow, Cheshire (gr., Mr. Holbrook), from his noted collection, has received awards for Cypripedium insigne, Harefield Hall variety, a veritable giant, and a handsome one to boot. As a standard variety, its distinctness will cause it to rank with C. i. Sanderæ, and always maintain good actual value. Cattleya Mendeli, Beatrice Ashworth, a delicately-tinted white variety; C. Schroderæ, Harefield Hall variety; the first true albino of D. nobile Ashworthianum; and a singular rose-tinted hybrid Odontoglossum near to O. aspersum in O. hybridum Ashworthianum.

Norman C. Cookson, Esq., Oakwood, Wylam, Northumberland, the famous amateur hybridist (gr., Mr. Wm. Murray), has from his collection raised and exhibited several good things as well as by home-raised seedlings, proving the record of natural hybrids, such as Cattleya × Hardyana, &c. Formerly, we recorded the fact that Mr. Cookson had succeeded in raising true, and also by that means succeeded in improving on, Cypripedium Lawranceanum Hyeanum by seeds obtained by fertilising the plant with its own pollen. The first eight or ten plants to flower were all true in the suppression of colour, and better than the original in size. Last year one flowered out of the same batch, which proved to be only a poor form of the common type of C. Lawrenceanum. This shows that the variation may be perpetuated by true seeds, though on securing plants the raiser must not conclude that they are true until he has seen the flowers. Of Mr. Cookson's best things shown last year are Calanthe × splendens, brilliant in colour; Phaio-Calanthe × grandis, the showiest Phaio-Calanthe yet raised, and some very handsome varieties of his Phaius × Norman, the showiest and freest to flower of all the hybrid Phaius, and on that account quite a florists' flower.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), who cultivates principally Odontoglossums, Cattleyas, Lælias, &c., and is not content unless he secures the best, has certainly succeeded in his object in Odontoglossum × Wilckeanum Pittiæ, and O. × W. Pitt's variety, the two best which have yet appeared, and worthy companions to each other. Both secured First-class Certificates, and the latter was illustrated in the *Gardeners' Chronicle*, May 7, p. 274. Other very fine varieties shown by Mr. Pitt are Odontoglossum grande Pittianum, a splendid form with flowers wholly of two shades of yellow; and O. × excellens, Rosslyn variety, a perfectly-formed flower.

Other noteworthy productions of amateurs during 1898 are Cattleya Trianæi, Broome's var., of Joseph Broome, Esq., of Llandudno (gr., Mr. Axtell); C. T. Chardwar var., of G. F. Moore, Esq.; and the finely-formed white C. T. albida of G. W. Law-Schofield, Esq., Rawtenstall (gr., Mr. Shill), who also flowered the pretty ruby-crimson-spotted Odontoglossum crispum Lehmanni, Schofield's variety; Cattleya Mendeli Amelia, of W. P. Burkinshaw, Esq.; Miltonia × Bleuana rosea gigantea, of Mr. Jules Hye-Leysen, of Ghent, which, with the others of his select group shown at the last Temple Show, vanished in the most unaccountable manner; Lælia anceps Amesiana, Crawshay's variety, of De B. Crawshay, Esq., a specialist in L. anceps and Odontoglossums; Cattleya × Sedeni and Lælio-Cattleya × Fascinator, of C. L. N. Ingram, Esq. (gr., Mr. T. W. Bond); the pretty lavender-tinted Cattleya × Bowringiana Lady Wigan, the pale lavender-tinted Lælia Perrini leucophœa, and the showy Lælio-Cattleya × Joyce Wigan, of Sir Frederick Wigan, Bart. (gr., Mr. W. H. Young); Lælio-Cattleya × Schilleriana, Cambridge Lodge variety, Lælia purpurata Ernesti, and Cypripedium × Wottoni, of R. I. Measures, Esq. (gr., Mr. H. J Chapman); Odontoglossum Hunnewellianum majus of Henry Greenwood, Esq.; O. Pescatorei Duchess of Westminster, from the Duke of Westminster; Sophro-Cattleya × Geo. Hardy, from Fred. Hardy, Esq. (gr., Mr. T. Stafford); Cattleya intermedia, Fowler's variety, of J. Gurney Fowler, Esq. (gr., Mr. Davis); and Lælia pumila Colmani, of Jeremiah Colman, Esq. (gr., Mr. King).

(*To be continued.*)

NEW OR NOTEWORTHY PLANTS.

ARUNDINARIA NOBILIS.[*]

Mr. Rashleigh, of Menabilly, obligingly forwards us a photograph of the fine Bamboo which he grows in his Cornish garden under this name. It forms clumps 23 feet in height, and is one of the most striking of the hardy Bamboos. Its origin and specific name are alike doubtful. Mr. Rashleigh is of opinion that it may have come from China, and Mr. Freeman-Mitford, in his charming *Bamboo Garden*, is of the same opinion. Being unable to identify it with any of the Indian species, Mr. Mitford has described it in the work cited as A. nobilis, and the illustration (fig. 4, p. 9) will show that the name has been well chosen. It is met with in cultivation under the names Arundinaria falcata, Thamnocalamus Falconeri, and Arundinaria khasiana, but it differs from each and all by characters which are given in the work cited. It is more hardy than either A. falcata or Thamnocalamus Falconeri, the only other two Bamboos with striated leaves which are grown in our gardens. In ordinary winters the culms do not die, though the leaves may be shed. In severe winters the culms may be killed to the ground, but the roots are uninjured. "In the Midlands," says Mr. Mitford, "we may regard Arundinaria nobilis as a deciduous Bamboo, and to that extent hardy. Its gigantic stature, beauty of colouring, and elegance of form, give it an ornamental value, as to which there cannot be two opinions."

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[*] Arundinaria nobilis, Freeman-Mitford, *Bamboo Garden* (1896), p. 179.

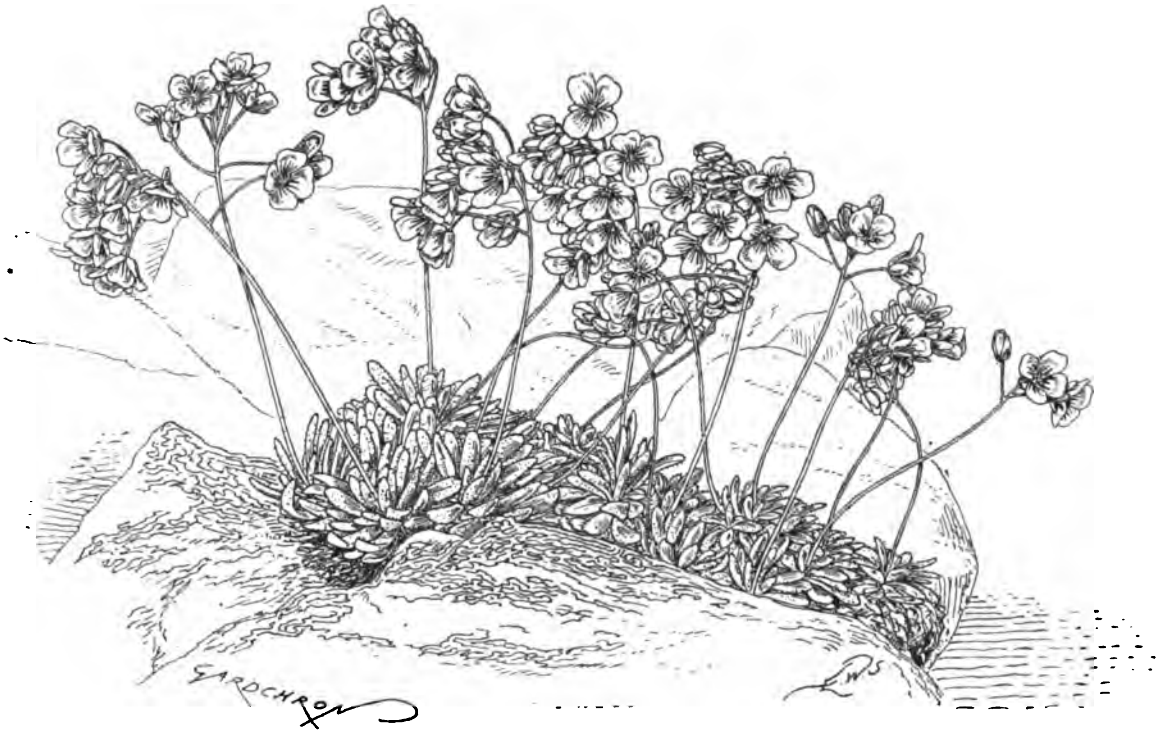


FIG. 1.—DRABA ELEGANS: COLOUR OF THE FLOWERS SULPHUR-YELLOW.

CYPRIPEDIUM (PAPHIOPEDIUM) BARBATO-CHARLESWORTHI, *new gard. hyb.* (BARBATUM WARNERIANUM ♀, CHARLESWORTHI ♂).

This, the first C. Charlesworthi cross which I have seen, has been forwarded by Mr. G. W. Cummins, gr. to W. H. Lumsden, Esq., Balmedie, Aberdeen, N.B., in whose gardens a small batch of this cross has been raised from seeds. It is a very pretty flower, approaching C. Charlesworthi in general appearance, though on examination its characteristics are found to be quite intermediate between those of the two parents.

The leaves (which I have not seen) are said to correspond with those of C. Charlesworthi, but with the variegation of C. barbatum. The scape is purple and downy, bract green, spotted with purple, and about half as long as the ovary.

The flower has the upper sepal flatly displayed, the margin being slightly incurved. The lower half is of a bright rosy-purple colour, with indistinct green lines radiating from the base; the upper half being white with the rose-purple colour of the base continued through it in reticulation following the veining, and growing lighter towards the tip. The lower sepals are greenish-white with bright-green lines, a rosy tinge suffusing the back surface. The petals are slightly deflexed (much more horizontally extended than in C. Charlesworthi), distinctly ciliate on the upper, and less so on the lower margin, neither bearing any traces of the wart-like formations seen in C. barbatum. Their colour is whitish, veined and tinged with dull rose. The lip is of a greenish-white with darker veining, and a brownish-purple tinge on the face; staminode pale lilac, with greenish-yellow keel in the centre. Although it is not a startling novelty, yet its brightness of colour will make it always worth its place, in the same manner as a similar colour has constituted C. œnanthum a general favourite. *James O'Brien.*

DRABA ELEGANS.

THIS rare, pretty-looking Draba was found by Mr. Siehe, of Mersina, growing on rocks of the Cilician Taurus, 1000 mètres above sea level. Our illustration (fig. 1) shows the plant in its natural position, and of its natural size. The flowers are clear sulphur yellow colour, and they appear at the beginning of April. It greatly resembles Draba olympica (bruniæfolia). *U. Dammer.*

COLONIAL NOTES.

CEYLON.

SOME of your readers may be interested to know that the following objects of interest may now be seen in convenient parts of these gardens, viz., a Victoria regia, the Giant Water-Lily, in bloom in the lake. A Cannon-ball fruit-tree, a member of the "monkey-pot" order (Lecythidaceæ), and native of tropical America, bearing three globular fruits suspended by straggling flowering branches issuing from the trunk at a height of 12 ft. from the ground. The fruit, the pulp of which is relished by the natives where it grows, is appropriately named, being about the size of a man's head, the largest at present measuring 11 inches in circumference, and is still growing. The tree itself, introduced in 1881, and probably the only one in the East which has as yet borne fruit, is one of a row of the same species planted along the East river-drive, all apparently of the same age, viz., 17 years, and averaging about 55 feet in height.

In close proximity to these is a handsome specimen of a Talipot Palm in flower, and which has been found to be of the following dimensions:—Height of trunk to inflorescence, 73 feet; height from this to top of inflorescence, 30 feet—total height, 103 feet; girth of trunk at base, 13 feet. The inflorescence, which tapers to the top, consists of fifty main branches, one of which has been found to measure 15 feet in length, having twenty-six "branchlets," averaging 2 feet in length. The branch measured required three strong coolies to carry it; thus, making allowance for smaller branches at top, quite 100 coolies would be required to carry the whole inflorescence. The Talipot "flower" collectively is therefore by far the largest in the vegetable kingdom. The individual flowers are inconspicuous, greenish-white, unpleasantly scented, and are blown about by the wind, giving a snowy appearance to the ground underneath. Estimating by the number counted on one spike, the whole inflorescence contains over 60,000,000 flowers. *H. F. Macmillan, Curator, R. B. Gardens, Peradeniya.*

[A figure of a Talipot Palm in flower was given in our columns March 22, 1873, p. 401, the photograph having been sent us by our friend the late Dr. Trimen. The Cannon-ball-tree was also figured August 5, 1882, p. 177. ED.]

CULTURAL MEMORANDA.

SOLANUM CAPSICASTRUM.

IF this plant be well grown and an abundant crop of highly-coloured berries obtained, it remains unsurpassed in its effectiveness as a decorative plant during the Christmas season. In the shortest days of winter these bright berry-bearing plants are especially appreciated in the dwelling-house, where they introduce a desirable change from the type of plants used for furnishing the vases during other portions of the year. There could hardly be a class of winter decorative plants that could withstand the close, dry atmosphere of living rooms so satisfactorily as this Solanum; moreover, it is easy of propagation and cultivation. At the present time I have a batch of plants in 6 and 7-inch pots, and they individually carry as many as two hundred berries of a brilliant scarlet colour. These plants are about three years old, and we find them of inestimable value for furnishing tables and for the decoration of ball-rooms at the Christmas season. Fortunately, the plants lose nothing in effectiveness when seen under artificial light. The system of culture we practise in the case of Solanum Capsicastrum is as follows:—The seed, so soon as it is ripe, is sown in a pan containing a sifted compost of loam and leaf-soil in equal parts, and silver-sand. It is placed in a temperature of about 65°; if plunged in a propagating-bed, the seeds will germinate more quickly. When the young plants are large enough, remove them singly into 2½-inch pots, and place them on a shelf near the glass in a rather warm and genial atmosphere. Pinch the shoots and repot the plants as frequently as is necessary, always exposing them to the greatest amount of light possible, to induce a stocky, robust habit. An occasional application of clear liquid-manure should be afforded as the plants gain strength, the aim being to obtain a many-branched, healthy plant in as short a time as possible, so that by the month of June they may be planted out in an open sunny border. Due attention to affording necessary root waterings, and to keeping the surface of the soil free from weeds, will be all that is needed until the latter part of the month of September, when the plants should be lifted and potted up into pots of suitable sizes. A shady spot out-of-doors should then be chosen for the plants, and frequent overhead syringings will be necessary for a few days. In a week remove the plants to a light, airy house, where the berries will soon become coloured. At the time of housing the plants, it is good practice to shorten the growths beyond the topmost berry in order to concentrate the whole energies of the plant into the swelling berries. For early fruiting we find the older plants more valuable, as the wood of these naturally becomes matured earlier than the young plants. The Solanum Capsicastrum is subject to attacks of aphis, red-spider, and thrips; these can easily be kept in check by periodical syringings with an insecticide, or by occasional fumigation.

Cyperus natalensis.

For use in dwelling-rooms, and for general decorative purposes, this Cyperus is invaluable, and it may be propagated and cultivated with comparative ease. I know of no plant better suited for furnishing small vases, or for use as a "dot" plant upon the dinner-table. For the latter purpose we turn the plants out of the pots (generally small 60's), and neatly cover the ball of soil with living moss, procured from the woods. No matter what the design, these little plants, with their bright green foliage, always present a pleasing appearance upon the table.

The best method of propagation is to sow seeds at intervals throughout the year. In our case we sow a pinch of seed once a month in a 5-inch pot, and if the seed has been properly ripened before gathering, germination will take place very quickly and freely. When the young plants are about an inch high, they are potted-up into 2½-inch or 3-inch pots, using a compost of equal parts loam and leaf-soil, with an admixture of silver-sand. Small clumps of the seedlings are lifted from the seed-pot with a pointed stick or label, and inserted in the centre of the small pots, pressing them fairly firmly with the fingers. No more shifting will be required, for the foliage presents a much more elegant appearance when grown in this way than if planted sparsely, and given more liberal cultivation. Half-a-dozen plants or so are annually potted on into 6-inch pots, and if due attention be given them during the autumn by placing them in a sunny and airy position, they will furnish an abundance of good seed. Copious supplies of water to the small plants at all times, when they have become established, is essential. The cultivator can well afford to sacrifice those plants that have done duty several times and have become shabby, as others may be raised with so little trouble. *H. T. M., Stoneleigh.*

THE HARDY HEATHS.

(Continued from vol. xxiv., p. 454.)

E. multiflora.—Among hardy Heaths the nearest ally of this species is our British E. vagans. It is, indeed, sent out by some nurserymen under that name. It differs, however, in its denser, much more compact habit, and in its shorter flower-spikes; neither is it a native of Britain. It is widely spread over South Europe, extending along the Mediterranean region from Spain and France to Greece. It grows from 12 inches to 18 inches high, forming close, rounded tufts. The shape and arrangement of the leaves are the same as in E. vagans. The flowers are also of the same pinkish hue, but the racemes are only 1 inch to 2 inches long—about one-third the length of those of E. vagans. With us E. multiflora flowers from August to October.

E. scoparia.—Although one of the species from the Mediterranean region (the western part), this Heath is quite hardy near London. Winters like that of 1894–95 cause the upper and more exposed stems to split, but the main body of the plant is not seriously injured. At Kew it has stood for many years in a place not particularly sheltered, and is now 6 feet to 9 feet high. It grows erect, and is of a rather uneven, straggling, but still picturesque habit. The leaves are deep-green, and arranged in threes, the whorls being further apart than in most Heaths. The wood is glabrous, and the small, greenish-white, crowded flowers are borne in the leaf-axils, on several inches of the terminal portions of the long slender twigs. Compared with the other tall South European Heaths, it differs from E. arborea and E. lusitanica in its smooth stems, and from E. australis and E. stricta in its axillary flowers. It blossoms in June.

E. stricta.—Like the species just described, this ranks as one of the hardest of South European Heaths. The winter of 1894–95 did not affect it even so much as E. scoparia. I do not know the largest size to which it grows; the tallest plants I have seen are about 5 feet high. It is of sturdy habit, and its leaves (which are green, not glaucous beneath, as in so many Heaths) vary in the number at each whorl from four to six. The flowers are borne in terminal clusters, which on the majority of the shoots are umbels, but on the stronger ones may be termed short racemes. The flower is a quarter-of-an-inch long, pale purple, and cylindrical, being almost as wide near the mouth as at the base. It commences to flower in June and July, and blossoms may be gathered as late as November.

E. Tetralix (Cross-leaved Heath).—Of the true Heaths (that is, not including Calluna), this is probably the commonest in Britain, being widely spread over the three kingdoms. Four leaves occur at each node, and they are arranged cross-wise. The plant grows 12 to 18 inches high, and is downy in almost all its parts, especially the young shoots, leaves, and sepals. The flowers are in terminal umbels, the corolla a quarter-of-an-inch long, very much contracted at the mouth, and bright rose. It blossoms in late summer and autumn. It is a variable plant, especially in the degree and character of its pubescence, which in some instances becomes almost bristly hairs. Two varieties are cultivated—alba, with white flowers; and rubra, in which they are more distinctly red than in the type.

E. vagans (Cornish Heath).—Probably the most vigorous of the dwarf Heaths, this is also one of the most attractive hardy shrubs flowering in late summer and autumn. It is a native of Cornwall, and is also found on the coast of Waterford in Ireland. It is a glabrous shrub, 1 foot to 2 feet high, its lower branches spreading and prostrate. Under cultivation, where the soil is too moist and rich, it is apt to become sprawling and ungainly after a few years. The flowers are borne, two or three together, in the leaf-axils towards the top of the branch, on very slender stalks of unusual length. They are cup-shaped, almost globular, and pinkish-purple, with the dark purple anthers well protruded. The whole raceme is 4 inches to 6 inches long. The leaves are four, sometimes five, together in the whorl, and are a quarter of an inch to half an inch long. The following varieties, whose names sufficiently denote their distinctive characters, are in cultivation: Var. alba, var. rubra, and var. grandiflora.

E. Watsoni ×.—This is most probably a natural hybrid between E. ciliaris and E. Tetralix, and was first found on a heath near Truro by Mr. H. C. Watson, after whom it was named by Bentham. It has an inflorescence intermediate between the capitate one of E. Tetralix and the elongated raceme of E. ciliaris. The leaves are ciliate, but narrower and more revolute at the margin than in E. ciliaris. The flowers are rosy-crimson. *W. J. Bean, Arboretum, Kew.*

REMOVAL OF RHODODENDRONS FROM THE GARDENS OF D. HENRY SHILSON, ESQ., TREMOUGH, FOR KEW.

An interesting event recently took place at Tremough, Penryn, Cornwall, in the removal to the Royal Botanic Gardens, Kew, of a collection of Himalayan Rhododendrons, presented to the Gardens by D. Henry Shilson, Esq., the owner of Tremough.

There has lately been added a wing to the Temperate-house at Kew, this, we understand, is to be largely occupied by Rhododendrons, and the plants removed from Tremough will be planted therein. They comprise such species as Falconeri, Thompsoni, barbatum, niveum, Aucklandi, ciliatum, and arboreum, in several varieties, including that triumph of hybridisation, to which the name of Shilsoni has been appropriately given. This gem was raised by the late Mr. Wm. Shilson, by crossing R. Thompsoni with barbatum. Kew already possessed a plant of this much-coveted variety, but it is a pigmy compared with the one now sent, for so large was this plant that it was found necessary to allot it a separate railway truck to itself, and, to ensure its safe passage under the arches, was packed lying on its side. Several of the plants were noble looking specimens, ranging from 12 to 15 feet high, and of nearly two tons in weight.

Tremough ranks as the Rhododendron Garden of Cornwall, and here, if anywhere, the cultivation of these beautiful plants has reached the acme of perfection—climate, soil, and situation suiting them admirably (see fig. 2, p. 5).

The late Mr. Shilson was one of the first in this country to take up the cultivation of these noble plants, and at Tremough there may be seen some of the most wonderful Himalayan Rhododendrons in the country.

Mr. Watson, of Kew, superintended their packing and removal, and his name was a sufficient guarantee that they would arrive safely at their destination. *R. Gill, Tremough.*

THE OLEANDER.

In another place the magnificent plants of Nerium Oleander existing at the Luxembourg Palace in Paris are alluded to. A few memoranda as to the cultivation of the plant may not be amiss, so little success attending the amateur gardener in this direction.

The flowers are produced on the wood of the previous year, if it be well matured, and they appear on such shoots for two successive years. Hence a plant of Oleander must not be cut down, or even much pruned, beyond thinning out some of the weak or redundant shoots. Its habit is to produce flowers at the upper part of the head, and any endeavour by pruning to get flowers low down ends in failure, and a mass of flowerless shoots near the ground-level. It is due to this habit of flowering at the top that large examples, when observed in full bloom, resemble miniature flower-beds. The plant grows well under semi-aquatic conditions, as does the Willow, which in its habit of growth it greatly resembles. It requires a stiffish loamy soil, well enriched with manure, and above all, perfect drainage, for, notwithstanding that the large quantities of moisture demanded in the growing season, it dislikes water stagnant in the soil. Repotting or tubbing should not occur oftener than once in four or five years, although top-dressing with rich compost may be performed annually. The best month to repot, &c., is May, and in the case of plants that have reached a good size, large shifts should not be afforded, a 2-inch space all round the ball being sufficient—that is, after loosening the outer roots and soil.

The plant should remain out-of-doors from the end of the month mentioned till the first week in October, and in the sunniest spot at command. In the latter month, after taking away any of the top-dressing of manure that may have been afforded, and tickling the surface with a pointed stick to make it permeable to water and air, for the plant must have water afforded three or four times during the winter. Any semi-dark, dry, frost-proof place, where the temperature does not fall below 40°, will suit the plants from October till March.

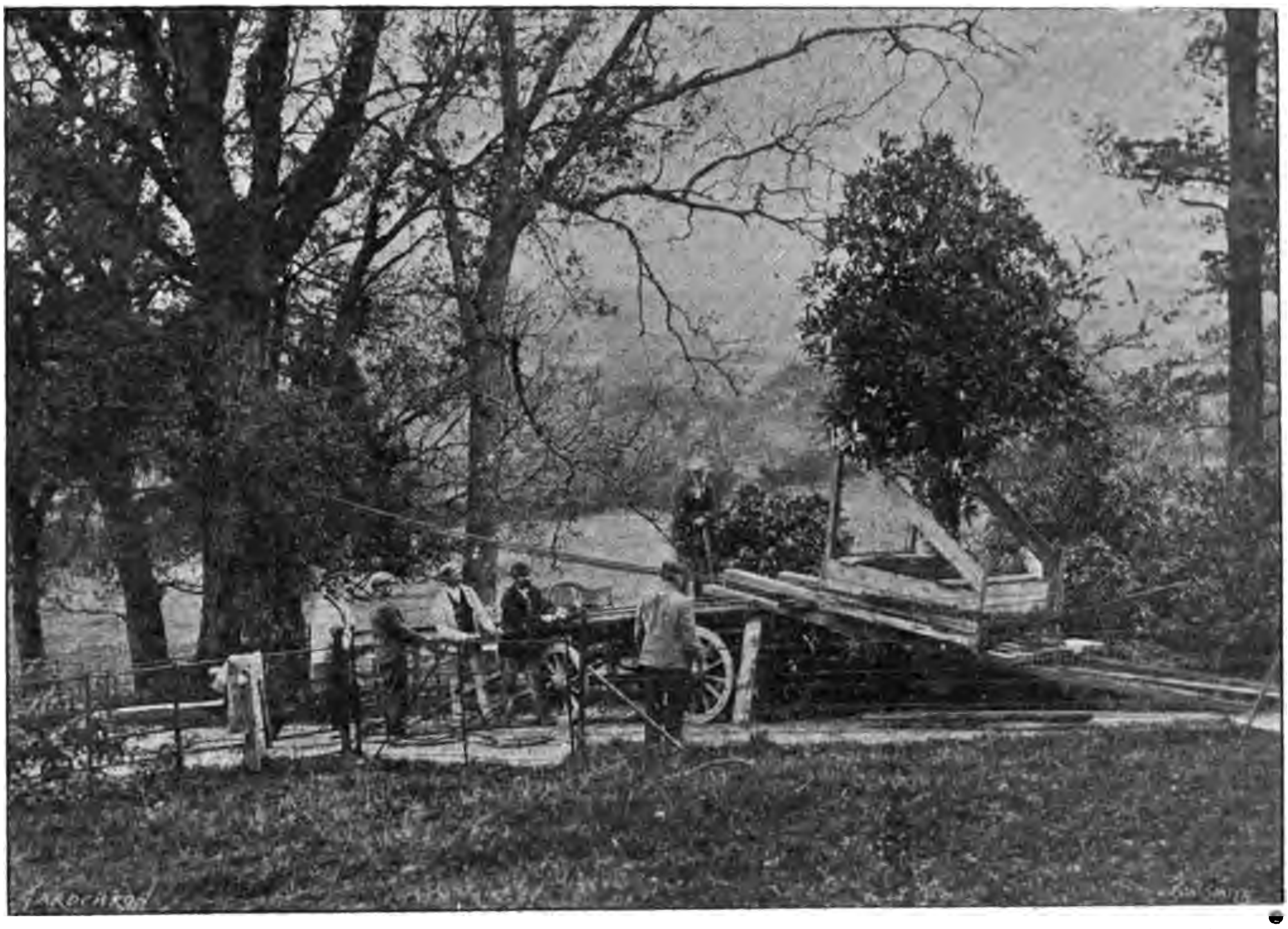


FIG. 2.—REMOVAL OF SPECIMEN RHODODENDRONS FROM THE GARDENS OF D. HENRY SHILSON, ESQ., TREMOUGH, PENRYN, CORNWALL, TO THE ROYAL GARDENS, KEW. (SEE P. 4.)

(Photographed by Mr. Arthur H Huss.)

AMERICAN NOTES.

CLEMATIS PANICULATA.

THIS fine climber promises to become one of the most popular climbing flowering-plant in America. Last spring the very large supply was not equal to the demand, and the stock was exhausted before the planting season was over. It seems to be an ideal climber for covering walls, piazzas, columns, or any object in a sunny position. It is unique when grown as a large single plant, with a light frame to scramble over, or, when tied to several centrally-placed stakes, which will allow the laterals to droop around, and which, when covered with their wealth of white, sweet-scented flowers, present a picture of great beauty. Its perfume is like that of the Daphne, penetrating and sweet. It commences to bloom here in the latter part of August, and continues for a period of six weeks. It is a strong grower, and makes shoots from 18 to 20 feet in length in a season. A writer recently said in the *Gardeners' Chronicle* that, owing to the fact of its not ripening its wood, the plant does not do so well in England (see vol. xxiv., p. 268). We do not think this is the cause, and treat the plants ourselves as perennials, cutting them down each winter.

We enclose a photograph of a specimen planted three years ago in good rich soil in the kitchen-piazza of our residence. This plant we cut down to within 6 or 8 inches of the ground each winter. We have examined the ripe wood this morning, December 5, 1898, and find no canes ripe over 4 and 5 feet of their growth, although they grew to lengths of 16 to 18 feet, and we expect this plant to do equally well next season. Its growth during early summer is rapid, requiring its young shoots to be frequently tied-in, so as to cover all the space desired. Like all other Clematis, we find a good mulch of rotten manure is very beneficial to it if applied in the fall. This may be allowed to remain during summer, as it will then help to keep the soil cool and moist during hot weather. The plant here is entirely free from insect pests and diseases, and although as hardy as an Oak-tree, we do not think it will give satisfaction if planted in shade. The climber on the right hand and on the walls above it in the photograph is Ampelopsis Veitchi, and we take great pride in pointing to the fact that we were the first to offer this plant in America. It has been planted very extensively all over this country, and is still growing in popularity. *John Charlton & Sons, Rochester, N.Y., U.S.A.* [The photograph mentioned is not suitable for reproduction. ED.]

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Description of Houses.—In order to cultivate a fairly representative collection, three houses at least are necessary, and it will be an advantage if these can be sub-divided. In that case the requisite shading, airing, and damping of the different species, may be performed with greater benefit to the plants. One of the houses may be called the "East Indian" or "tropical" stove, and this will be devoted to plants from low elevations in the tropics of both hemispheres, though mainly to those from the eastern hemisphere. A division is generally necessary, because the genera are so diverse as Dendrobium and Cypripedium—the former requiring strong light and the latter comparative shade. The second is known as the "Cattleya" house; but there are many other genera that may be grown in it, including most plants that are indigenous to the lower mountainous regions of the tropics. Sub-division is not absolutely essential in this case, but is an aid to the better cultivation of the so-called Mexican Lælias, which in many localities can be grown without any artificial shading. The third house will be the cool-house, for the cultivation of the various genera and species found that grow in cool temperatures in the Orchid world, latitude and altitude both bearing considerably upon the conditions they require. Sub-division of this house is an absolute necessity, not so much from the point of view of temperature as for those of shading and damping. It is a much debated question whether this house should be built against a wall facing north or in the open. No doubt the former has its advantages during the summer-time, but I think these are discounted by certain disadvantages during the winter, and I am inclined to favour a more open position, as ordinary shading is far easier to remove than brick walls.

Temperatures will be more or less of an artificial nature for some time to come, but the more we can can dispense with artificial heat the better. The hot-water pipes in any house should be more than sufficient to maintain the requisite temperature without heating them (the pipes) to a great extent. The sides, ends, and roofs of the houses may be covered at night with some suitable material, which will lessen the amount of fire-heat required. The lath-roller blinds, now so commonly used, are excellent for keeping frost off the roof, and can be pulled up in the morning without tearing, as canvas blinds frequently do when used for the purpose. The temperatures should be as follows: East Indian-house, 70° by day, receding during the night to 65°; Cattleya-house, by day 65°, by night 60°; and the Mexican division, being at the cooler end, will be a degree or two lower at night. The warmer division of the cool-house should be 58° by day and 53° at night, and the cooler end 50° by day and 45° at night. The day temperatures will vary considerably, according to the conditions outside; but the above figures denote the degree of warmth to be maintained by artificial means. In the event of very severe weather, the temperatures may be allowed to drop a few degrees lower than those given, and will be less hurtful than the extra fire-heat that would otherwise be required. The thermometer inside may register 1° less for every fall of 8° outside, or *vice versâ*.

Ventilation.—The East Indian and Cattleya divisions should be given no air through the top ventilators during the three winter months, but the bottom ventilators may be used on all occasions when there is no frost near them, and in the Cattleya-house they may be opened very slightly at night when the temperature is above freezing point. On mild, open days the cool-houses will require the use of the top ventilators as well as those in the brickwork of the house; but where they are situated on both sides of the house, those on the leeward side only should be employed. Until a week before Christmas the top ventilators of our Odontoglossum-house were open at night about 3 inches the full length of the house.

Watering and Damping.—In the cultivation of Orchids, with few exceptions, it is safer to let the potting material remain dry for a few days than to give water to the plant before it actually needs it. There may generally be found, however, some indication that a plant is in need of water, such as a tendency in the bulbs to shrivel, or a limpness in the leaves of species having no pseudo-bulbs or stems. To prevent these conditions developing to an injurious extent, frequent and careful examination is necessary.

Moisture in the air is very necessary to the plants, but a saturated atmosphere, in conjunction with a low temperature, is as unsatisfactory as an exceedingly high temperature without moisture.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Planting.—By this date, with the mild weather that we have been avoured with, most of the planting of trees and shrubs will have been completed. It will now be necessary to have all of these trees and shrubs carefully staked without loss of time, in order to prevent wind-waving. The stakes, both long and short, should be driven into the ground firmly in a slightly slanting position, using plenty of bast round and between stake and stem, and not binding too tightly. Do not allow the base of the stems to be buried with soil for any length of time, but make the ground around either level or sloping away from the stem—excepting in very light or shallow soil, when the ground may slope towards the stem slightly.

Keeping.—All tree leaves that are likely to be blown about should be raked and swept up, either burying them in the shrubberies or taking them to the leaf-heap to decay and to be returned to the soil as leaf-mould. Let the land be forked over lightly between young shrubs, burying weeds, &c., but not digging so deeply as to injure the roots. The digging will tend to aerate the soil and make it permeable to water. Where large roots and suckers from the same have come through the surface of the lawn, the turf should be lifted and the suckers dug up; and in the case of roots, soil must be added so as to cover them and prevent damage to the mowing-machine.

The Flower-beds.—All vacant flower-beds may now be dug, leaving the surface rough so as to allow of the frost penetrating and pulverising it, leaving what soil or manure is to be added till the second digging a few weeks hence. All large beds used for sub-tropical plants such as Cannas, Ricinus, &c., should be trenched eighteen inches deep, placing a good spit of farmyard manure in the bottom of each trench.

Kniphofias, commonly known as Tritomas, should have a small stake driven down towards the centre of each plant, and the foliage twisted round the same and secured with bast, then coal ashes should be placed round the crowns as a safeguard against frost.

Half-hardy Plants.—Violas, Calceolarias, Gazanias, and other half-hardy plants standing in frames, should have abundance of air during mild days in order to enable the plants to withstand confinement and lack of light during periods of frosty weather that may occur.

Flower-sticks.—This seems a small matter, but it is one that should have attention at this season, when, owing to bad weather, the men cannot work outside. Privet and young Hazel shoots make good neat flower-sticks, and these should be secured, and after sizing them, be tied in bundles tightly, and placed in a dry place. Stakes of all kinds may be made or repointed, also layering-pegs made and put away in readiness for use. Every day will now add to the cares of the gardener, and nothing should be left over that can now be done till a more busy time arrives.

Bulbs.—Any of these which are now pushing through the soil, such as Narcissus, Tulips, Crocus, and Spanish Iris should have a slight sprinkling of soot, using that which has been stored for some time. This will prevent worms drawing the leaves into the ground, and afford a slight check to the ravages of mice. Examine the beds daily, and if there are any signs of mice having got at the bulbs, set traps forthwith. The "figure 4" trap baited with cheese is one of the best.

FRUITS UNDER GLASS.

By W. STRUGNELL, Gardener to the Right Hon. W. H. LONG, Rood Ashton, Trowbridge.

Pot Vines.—Where the forcing of these commenced some weeks since, the temperatures must not be unduly increased while the days are so short, but rather let a genial condition be maintained by the aid of moderate firing and damping of the border morning and afternoon, and when there is sunshine light syringing is beneficial once during the morning. If the pots are stood over or near the hot-water pipes, a careful study must be made daily of the need for watering, or much mischief may result from injury to the roots. Every effort should be made to maintain an equable condition in the soil, not giving an excess of water at one time, and allowing the other extreme to occur at another. If bottom heat is generated by fermenting materials, this should be periodically examined and restored by the addition of some fresh materials mixed with that already in use. Tepid water only should be afforded, and, until growth is well advanced, stimulants in liquid form should be applied sparingly, if at all. Ventilation will be necessary only when there is sunshine to raise the temperature above 70°, and then it must be given with caution if the winds should be cold or frosty. Close early so as to husband as much solar warmth as possible, which is infinitely more invigorating than that obtained from the hot-water pipes.

The Early Vinery.—Where the earliest Grapes are obtained from planted-out Vines, these will have been duly prepared, if not actually started, prior to this date; this being so, much the same cultural conditions apply to these as are advised for pot Vines. See that the border is not in a dry state, but on the other hand, it is decidedly unadvisable to lower its temperature by heavy applications of water until there is some indication of root activity. Outside borders, where they exist in early Vineries, should have a covering of stable-manure and tree-leaves, sufficient to afford a slight warmth to the soil. When there is a tendency in the Vines to break unevenly, let the rods be bent in curvilinear manner, or tie them horizontally to the trellis along the front of the house.

The Early Peach-house.—Where the trees planted are those of Early Waterloo and Alexander, there should be no attempt made to unduly force them, or failure, more or less great, will be sure to result in premature bud dropping. These varieties must be allowed to advance up to and through the flowering period under slowly progressive treatment. After that time they can be hurried forward if necessary. Trees of these varieties, and the Early Rivers Nectarine, started the first week in January, will furnish ripe fruits at the end of April and early in May. Temperature for these should not exceed 45° at night, and but slight heat allowed from fire. Ventilate, too, on bright mornings, so as to maintain a buoyant atmosphere, and to prevent any undue excitement in sap movement. Main-crop varieties that do duty for early work will endure a few degrees higher temperature, and need it to bring them on early in the summer, but the effort should always be to avoid extremes from any and every cause. Uniformity of temperature, and also of root and atmospheric moisture, should be the guiding rule. A light syringing in the tepid water once or twice daily, will greatly assist the swelling buds. Pot-grown trees standing outdoors should now be brought in if they are intended as a first crop, or as a supplement to those established indoors. As their roots have been previously attended to, there will be nothing further needed. The condition of the soil and roots is more uniform if the pots are either plunged in the border or sunk in a bed of tree-leaves and litter. Trees that were infested with red spider or scale last season, should be dressed with some approved insecticide, to which is added some clay and sulphur, reduced with water to the consistency of paint. Sulphur is excellent for destroying scale or spider, used in sufficient quantity, and applied with a small painter's brush.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to Lady LOUISA FORTESCUE, Dropmore, Maidenhead.

Planting Fruit Trees.—The very mild and open weather which has prevailed throughout the winter, with the exception only of a day or two in December, has been most favourable for all planting operations in connection with the outside fruit garden, and work of this kind will be in a generally forward condition. Where not already completed, planting may yet be successfully carried on in open weather, but the sooner, now, that is finished the better chances the trees will have to become settled in the ground and ready to start into growth in the spring. Assuming that the ground has been properly prepared, the trees, if obtained from the trade, should have the roots thoroughly moistened if they are found to be in a dry condition, trimming off any broken portions or shortening others that are unduly long, and then embed them into moist soil till they are planted. Should the soil be rather wet when this is done, a few shovelfuls of a mixture of dry earth, wood ashes, and sandy road-scrapings should be afforded each tree in order to facilitate the planting and the production of young roots. Let this kind of material be well worked in about the roots, which should be laid out in a horizontal radiating position, giving the tree a slight upward and downward shake when about half the operation of filling-in is finished, and press the soil moderately firmly about the roots. Finish off with a mulching of littery or slightly rotten manure, with a view to excluding frost, encouraging root action, and, later, conserving the moisture in the soil.

Fastening Trees.—Standard and bush-headed trees should be secured to stakes placed firmly in the ground, the trees being fastened temporarily until well-settled in the soil. Wall trees may be secured from harm by gathering the branches together loosely with matting, and tying these temporarily to the wall from a nail on either side, leaving the training to be done later on. In planting wall-trees, due allowance must also be made for the swelling of the stems, by planting six inches or more from the base of the wall, and sloping the stem upwards against the latter; and Pear-trees especially need this attention, as their stems swell to a considerable size. Apricots, too, canker and gum, and lose branches from a too severe pressure of the stem against the wall at the first point of contact. An important item with newly-planted trees is to properly label them before the nursery labels are lost; and for this purpose the Acme or Stratford labels, in various shapes, are both cheap and durable.

Pruning and Cleaning Orchard Trees.—Orchards of Apple and Pear-trees are often left pretty much to look after themselves, excepting at fruit-gathering time, and consequently orchards in a bad condition are rather common, although much has been written and done in recent years, and a great improvement in this respect has resulted. The present is a suitable time for a judicious thinning and pruning of neglected standard-trees. Where the crowns have been much neglected, with the result that the branches are crowded, the pruning should be carried out gradually in order that no considerable check be given to the tree, the thinning in such cases being extended over two or three seasons. Begin by removing the innermost branches, and those that cross each other a few at a time at each winter's pruning. After sawing-off a branch, the wound should be smoothed over with a sharp pruning-knife, and if very large painted over with lead colour.

Dressing for Trees.—Trees infested with lichen should be cleansed, and moss or other growing rubbish removed from the base of the tree. The main branches may be brushed over with lime-wash made from freshly-slaked lime, or fresh lime in powder may be scattered over them when moist. One of the best and simplest winter-dressings for fruit-trees of all kinds I have yet tried is that made from an American recipe that appeared a few years since in a contemporary. It consists of caustic soda and potash in equal quantities. The proportions as follows:—1lb. of caustic soda, 1lb. of crude commercial potash, to be dissolved in a little hot water, adding to this sufficient clear soft water to make 10 gallons, or if more or less be required in similar proportions. If the preparation be used at a temperature of about 120°, it is the more effectual. This wash will remove moss and other parasites, and also kill most kinds of insects and their eggs, and leave the trees in a clean and healthy-looking condition. If used for Peach and Apricot-trees the above quantities should be diluted with 12 gallons of water, and be used only while the buds are in a somewhat dormant state.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Preparation of the Land.—The principal work in the vegetable garden at the present time consists of simple digging or trenching, either two, three, or four spits deep, the land being heavily or lightly dressed with manure according to its requirement and the special needs of the various crops to be grown thereon. Fresh manure from the stock-yard may be advantageously used where early digging is practised, and where no immediate planting has to be done, as also for turning into the trenches when land is dug two or more spits deep. For the crops of Potatos, manure should be well decayed if it be put near the top or close to the sets. Dig deeply land which is light, affording it plenty of manure at a good depth, so that the roots of the plants grown thereon will find their way down and be less liable to suffer from drought. [Some cultivators object to the early digging of light land, preferring to wait a few days before sowing or planting under the idea that more moisture is lost by such land when dug early, but this objection seems to us to apply more to summer than winter digging. Ed.] Do not dig land in sloppy weather, neither when it is much frozen, but wheel manure on to any piece of land which has yet to be dug.

Peas.—If a snug warm border exists in the kitchen-garden, and if no Peas have as yet been sown, make forthwith a sowing of such dwarf varieties as Chelsea Gem, W. Hurst, and American Wonder, especially the first named. Let the seed be sown somewhat thickly in rows about two feet apart; and to make them distasteful to mice, first damp the seeds and then roll them in red-lead powder. It may be advisable to make a good sowing in small pots at the same date, to be planted out. The seeds sown in pots may be stood in a cold frame and grown sturdily, with plenty of air admitted. Peas may be forced for an extra early supply of pods, but the plants will not stand a high temperature before the pods are formed. Peas should occupy a position near the glass, and where air can be freely admitted at all times without causing draughts. Bijou, or any other of the dwarf type, may be chosen. Attend to Peas just peeping through the ground, scattering some finely sifted leaf-mould or coal-ashes amongst them and alongside the rows, and letting them be staked early, and place evergreen twigs along the side of the rows as a protection against wind and frost. The Pea-sticks of last year should be overhauled and repointed if worth it, and then be bundled up in their various sizes. What will be required in the way of new Pea-sticks and Bean-stakes, &c., should be obtained and made ready for use.

Globe Artichokes.—If not done already, the Globe Artichokes should be protected from injury by frost by packing a fairly good thickness of litter over the roots and around the plants, keeping it in its place with a few spadefuls of soil. In the meantime a piece of land may be prepared for a fresh plantation, the planting being done in March. The new plantation always affords a crop of heads in succession to the old.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Hippeastrums (Amaryllis).—Old bulbs should at this season be quite at rest and dry at the root. They winter quite safely in a temperature of 45°. Seedlings which have not flowered should not be rested, but should be kept growing in the stove, or any other well-lighted glass-house where a temperature of about 60° can be maintained. A proportion of the strongest bulbs raised from seed sown during the summer of 1897 will flower during the coming months of April and May, and the remainder in the autumn and following spring. Seedlings which have been raised from seed sown last July should have been potted a month ago into 3-inch pots, and afforded a compost consisting of two parts loam and one part leaf-soil, with a liberal allowance of silver-sand, and should be placed in the stove as near to the roof, or in as light a part as possible. Hippeastrums may be grown successfully without the aid of bottom heat during any part of their growth.

Chrysanthemums.—The cuttings recently inserted should be examined at frequent intervals, and those which are rooted promptly removed from the close frame or hand-light in which they have been struck, or otherwise they will become drawn and weakened. They must be gradually hardened off, and in the first instance may be placed outside the frame in the same house, where the night temperature is not lower than 45°, air being admitted sparingly at the first, otherwise flagging of the foliage will result. The unrooted cuttings must be prevented from damping by removing the light from the frame early each morning for an hour, so as to let the moisture in the air evaporate and the leaves to become dry, at the same time wiping the condensed moisture from the inside of the light.

Caladiums, Tydeas, Achimenes, Gloxinias.—Examine the pots of these from time to time which are being rested under the stages and other out-of-the-way places, in order to make sure that they are dry and not exposed to drip from the stages, &c., otherwise the bulbs and corms may decay, or start prematurely into growth.

Euphorbia (Poinsettia) pulcherrima and E. Jacquiniæflora.—As soon as the plants of the first-named go out of flower, or rather when the bracts fall, water should be gradually withheld, and, when the soil is dry, they may be rested in a temperature of 50° to 55°, or at the cooler part of the stove. Euphorbia Jacquiniæflora may be rested in the same way, but it should not be dried off to the same extent.

Richardia (Calla) Elliottiana.—New seed of this yellow Aroid germinates freely, and those who contemplate purchasing seed should procure it at once from a trustworthy source. The seed may be placed singly in thumb-pots, or sown in a 5-inch or 6-inch pot, according to the number of seeds. A compost of loam, leaf-soil, and sand will be suitable in either case. The seed should be covered by half-an-inch of soil, and the pots placed in the stove or propagating-case. A good watering should be afforded in the first place, and the soil should afterwards be kept moist, when germination will take place in about a month.

THE APIARY.

By Expert.

Preparing Bees for Winter.—In a previous article I stated, as a *sine quâ non* that a colony, to winter well, should contain a sufficient number of bees. I am now reminded that I did not say what this number should be. It surely would be very difficult to state this in thousands or tens of thousands, and if I could do this it would be no better than hieroglyphics to most of my readers—I might say to all of them, for no one can make even an approximate guess at the number of bees a hive contains. It will be much easier to say that I would have bees on not less than five combs when they are clustered or imbricated together on a frosty morning, and the clusters should extend for over one half of the length of the combs. A strong colony, in a very good season, often covers the greater part of its combs below the honey, and it is a very good sign when you raise the super, or the cloth, or the honey-board, from the body, to see the bees clustered a little way down from the top of the combs. At the bottom they will, if healthy, reach clear down to the alighting-board, and will be on the alert at a minute's notice. The hive should be reduced to the size of the colony, for it is worse than useless to have empty comb, perhaps containing neither bees nor honey, at one side or the other. For this reason, with the large hives that we use, we always have a division-board, or dummy, which may be moved up when the useless combs are removed, so as to reduce the size of the hive, if needed, to a size proportionate to the strength of the colony. The dry combs are removed to the honey-house, and put away for future use, and the empty space on the side is filled with warmth-retaining moisture—absorbing materials. If we cannot increase the strength of our colony, it is at least a good plan to reduce the size of the hive to fit it, in such a way as this. But the strong colonies, covering every comb, are much to be preferred.

Food for Bees.—Now comes the question of food. If a sufficient number of bees is absolutely necessary to a safe wintering, it is equally evident that enough food must be had, and in an available position in reach of the bees; 25 lb. of honey is considered sufficient, in an ordinary winter, for the needs of a colony. With large hives, we would place this amount as a minimum, and would say 25 lb. to 40 lb. A much smaller amount may suffice, and we have reliable reports from experts showing that a colony, wintered in the cellar, may be brought through with as little as 5 lb. or 6 lb.; but I would counsel no one to try. First, the trials that have been made and have resulted in so light a consumption were only for the time which the bees passed in the cellar. The hives and bees were weighed at the moment of cellaring, and again weighed when removed, but they had more honey than the quantity mentioned as consumed; and if it had been otherwise, some of the bees might have been out of the reach of the scant supply, and their loss would have entailed the loss of the colony. Besides, these colonies have already passed through a couple of months of autumn weather when put away, which necessitated some food, and this amount should be computed, as well as the amount which they would consume when taken out of the cellar between that and the time of the honey-flow; and this amount would be very much greater than either the autumnal consumption or even the cellar consumption, for in the spring they need food, not only for the adult bees, that consume but little, but mainly for the young brood, which requires a very great amount of food to reach the adult state—and this brood-rearing must not be restrained under penalty of having but a weak colony at the opening of the harvest, and a consequent light flow of nectar.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	JAN. 10	Royal Hort. Soc. Committees. Scottish Hort. Assoc. Meeting. Roy. Hort. Soc. of Ireland Meeting.
SATURDAY,	JAN. 14	—Royal Botanic Society Meeting.

SALES.

MONDAY,	JAN. 9	Roses, Hardy Border Plants, Carnations, &c., at Protheroe & Morris' Rooms.
TUESDAY,	JAN. 10	Lilies, Pæonies, Hardy Perennials, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	JAN. 11	Lilium auratum, Tuberoses, Greenhouse Plants, Gladioli, &c., at Protheroe & Morris' Rooms.
THURSDAY,	JAN. 12	Hardy Border and Herbaceous Plants and Bulbs in variety, at Protheroe & Morris Rooms.
FRIDAY,	JAN. 13	Spiræas, Gloxinias, Iris, Roses, &c., at Protheroe & Morris' Rooms. Imported and Established Orchids, by order of Messrs. F. Sander & Co., at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—36·4°.

ACTUAL TEMPERATURES:—

LONDON.—*January* 4 (6 P.M.): Max., 55°; Min., 43°.

PROVINCES.—*January* 4 (6 P.M.): Max., 51°, S.E. and S. counties; Min., 40°, Shetland.

Sir W. T. Thiselton Dyer.

AMONG the honours recently conferred upon men of eminence in their several departments, we note with gratification the name of Mr. W. T. THISELTON DYER. The official notification runs as follows:—

> Chancery of the Order of St. Michael and St. George, Downing Street, Jan. 2, 1899.
>
> The QUEEN has been graciously pleased to give directions for the following promotion in, and appointment to, the Most Distinguished Order of St. Michael and St. George:—
>
> To be [an] Ordinary Member of the Second Class, or Knight Commander of the said most distinguished Order—
>
> WILLIAM TURNER THISELTON DYER, Esq., C.M.G., C.I.E., Director of the Royal Botanic Gardens, Kew, in recognition of services rendered to Colonial Governments.

Of course, it is in his capacity of Director of the Royal Gardens, Kew, that Sir W. T. THISELTON DYER, K.C.M.G., has been enabled, like his predecessors, to render such signal services to the colonies. The honour conferred may thus be considered as an official acknowledgment of the conspicuous zeal and ability with which the gardens have been administered, and by which the colonies have profited in common with the rest of the nation.

Apart from any satisfaction on personal grounds, we note with pleasure in this appointment a recognition of the claims of horticulture and botany on the consideration of the Government.

The honour conferred on Sir W. T. THISELTON DYER is timely and appropriate, as it coincides with the completion of the great Temperate-house in the Royal Gardens.

SIR W. T. THISELTON DYER, K.C.M.G.

(DIRECTOR, ROYAL GARDENS, KEW.)

1899.

THE first number of the New Year affords a fitting opportunity for looking ahead in order to note what is likely to take place in the coming months. We have lately had the opportunity of noting the progress of our art and of our science, and the great extension of horticultural pursuits that is taking place. There are, it is true, if we except Orchids, fewer plant-lovers and fewer plant-collections in proportion than there used to be. Now-a-days the tendency is to value plants almost exclusively for their decorative effects or for their utilitarian purposes. The consequence is, that collections have become less interesting and more monotonous, owing to the cultivation of large numbers of one or of a few things. At the same time the number of persons interested in horticulture has largely increased; the taste, at one time principally confined to the well-to-do few, is now generally diffused, and the artisan and the allotment-holder often get more personal pleasure out of their garden than do the owners of more pretentious establishments.

One circumstance, small in itself, shows the general drift. The committee meetings of the Royal Horticultural Society were wont to be held at fortnightly intervals all through the spring, summer, and autumn; whilst in the three winter months a meeting once in four or five weeks sufficed. Now this is not considered adequate; and, somewhat to the disrelish of the caterers for the press, the meetings in question will be held regularly once a fortnight throughout the year. The Temple Show and the Great Fruit Show at the Crystal Palace will

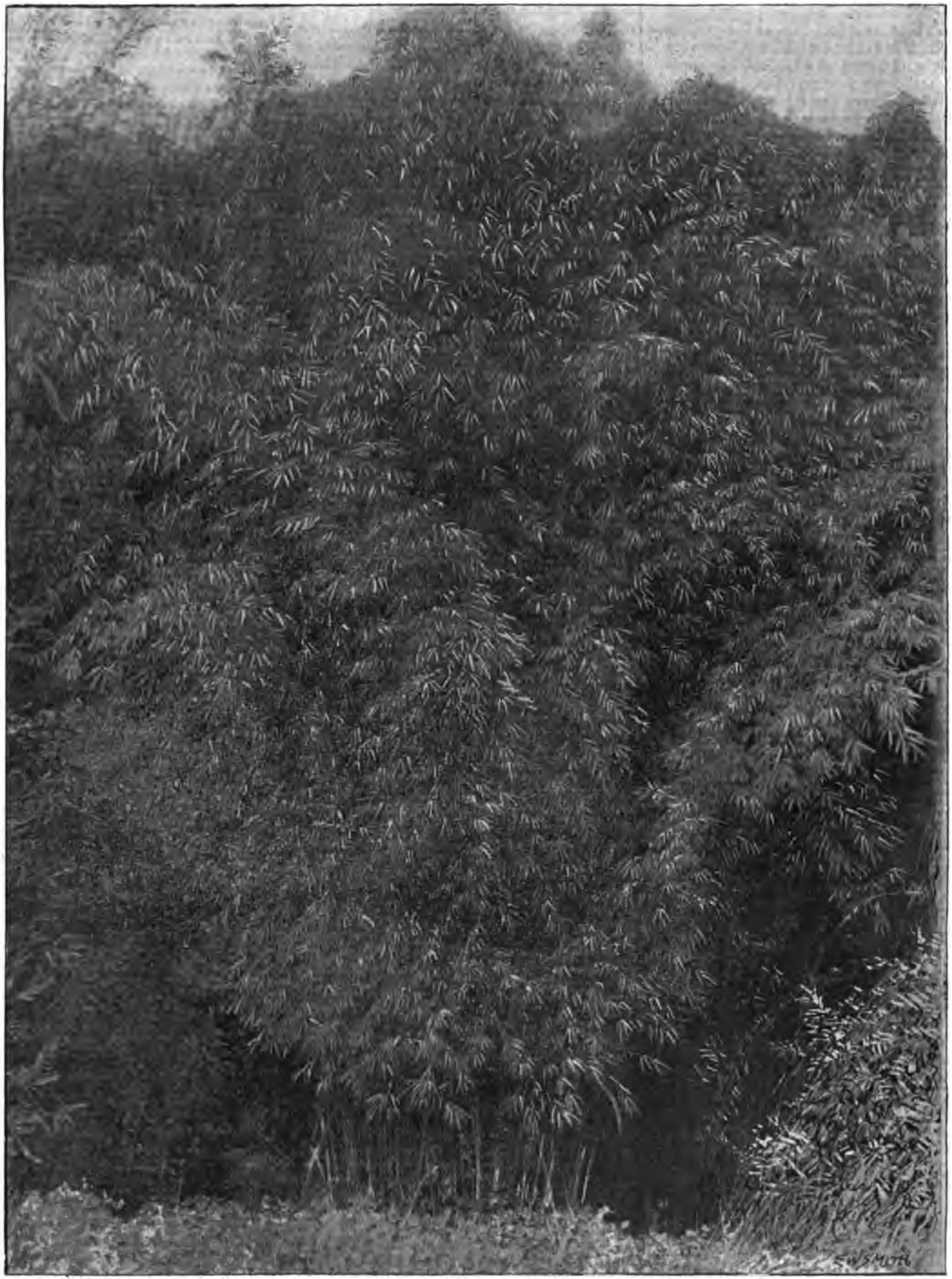


FIG. 4.—ARUNDINARIA NOBILIS (HEIGHT 23 FEET), FROM THE GARDEN OF J. RASHLEIGH, ESQ., MENABILLY. (SEE P. 2.)

take place as usual. At Chiswick, the Council of the Royal Horticultural Society propose to hold a Conference on the very important subject of Hybridisation. At the present time nothing can be more appropriate, as the progress of horticulture has of late manifested itself very much in the direction of experimental cross-breeding, and there is every reason to expect that the importance of the subject, whether as regards its scientific or its practical aspect, will largely increase. In due time we shall be in a position to lay before our readers further details; in the meantime, we may record our satisfaction that the series of Conferences which have been so very helpful in the accumulation and digestion of facts is to be continued, and that one, at least, is to be held in the old garden at Chiswick.

Our Almanac, published with the present issue, shows that the number of exhibitions to be held in London and the Provinces will be very large, especially in the Chrysanthemum season. We have to thank the secretaries of many of these societies for their kindness in sending us intimation of the dates fixed for their meetings. Some of the societies have not yet decided on the time of their exhibitions, and other records may be subject to alteration. Our list, notwithstanding, is as complete and up-to-date as we can make it in the space at our disposal.

On the Continent, there will be the usual great shows of the Société Nationale d'Horticulture in Paris, in which city the preparations for the great exhibition of 1900 will naturally occupy much attention.

St. Petersburg also is to have an International Exhibition, but we fear that visitors from England will be few, and exhibits fewer still. Another WARNER to take over a fine collection of Orchids is hardly likely to be found; nevertheless, we trust that our fruit-growers will uphold the honour of their country, both in Paris and in St. Petersburg. We do not think our foreign friends are at all generally aware of our superiority in fruit culture.

Ghent is not exhausted with its efforts of last year, and is not going to wait for another quinquennium before asserting itself. The State School of Horticulture was established fifty years ago, at first in connection with the famous establishment of LOUIS VAN HOUTTE. It has had among its professors, PLANCHON, CRÉPIN, KICKX. It still numbers our excellent friends and colleagues RODIGAS, the Director, PYNAERT and others, well known and highly esteemed in this country. A large number of youths have passed through the curriculum, and many of them are now filling posts of great responsibility in various quarters of the globe. Some of our nurserymen and others have sent their sons to obtain the benefit of the training in scientific and practical horticulture, which they could not, till recently, get at home. Our Belgian friends never miss the opportunity of a "*fête;*" and we have no doubt that their celebration of the Jubilee of their School of Horticulture will be a great success, and bring together a number of the old pupils to meet and encourage their successors. An exhibition is to be held, various meetings for the discussion of affairs in general are planned, and, of course, the inevitable banquet.

Another "Grande Exposition Internationale" is announced to be held in the same city from April 30 to May 9. The Exhibition is to be held in the grounds of M. VAN IMSCHOOT. The schedule comprises no fewer than eight hundred and fifty-eight classes.

At Kew, the completion of the Temperate-house places that establishment even more ahead of all other similar establishments than it was before—truly it is an establishment to be proud of. The opening up of the grounds round the Queen's cottage, the devotion to the purposes of the garden of the Kew Palace, the new offices, with their excellent accommodation for the young gardeners—all these matters afford a guarantee that the future of our great national horticultural establishment will be as brilliant in the future as it has been in the past, and its utility even greater.

The mention of Kew reminds us that horticultural botany suffers a great loss by the retirement of Mr. J. G. BAKER from his post as Curator of the Herbarium, in accordance with the regulations relating to age laid down by the Civil Service Commissioners. Our columns amply testify to the unwearied patience and skill exercised by Mr. BAKER, and very many of our readers have had, as we know, reason to appreciate, like ourselves, the knowledge, the urbanity, and the ever-manifest willingness to oblige, which have been such marked characteristics in the career of Mr. BAKER.

We believe that Mr. HEMSLEY will take up Mr. BAKER'S duties, and that being the case, we may be sure that whilst the interests of botany will not suffer, the claims of horticulture will meet with the fullest recognition.

Lastly, as the annual meetings will shortly be held, we may make a passing allusion to our garden charities. They are amply worth all the assistance and support that our readers can give them, as in spite of an antiquated, and as we think, vicious system of voting, they give great advantages at a minimum of cost.

The objections sometimes raised to the Gardeners' Royal Benevolent by reason of the occasional preference of candidates who have contributed nothing whilst they had the means of doing so, has been met by the establishment of the Victoria Fund, which ensures to those candidates who have contributed to the society a measure of assistance during the time that they are waiting for the full fruition of the pension. In any case, if one candidate gets in whilst another has to wait, the circumstance is inevitable under the present system of voting, and the fault, if fault it be, lies with the voters, and with those who refrain from giving their support to the Institution.

The Gardeners' Orphan Fund also does not receive so much support from the gardeners as it ought to do; and it is said, though we do not like to believe it, that Scotland and Scottish gardeners are remiss in this particular. If this be so, we hope that our friends across the border will see to it that 1899 does not pass away without a vigorous effort being made to put things on a more satisfactory footing. The announced retirement of Mr. BARRON from the post of Secretary will be received with the greatest concern. Probably no one thing in his long and useful career has given him more satisfaction than his labours on behalf of the Orphan Fund. In his retirement he will retain the sympathy and affectionate regard of all those with whom he has been associated.

ROYAL HORTICULTURAL SOCIETY.—The first meeting of the Committees of the Royal Horticultural Society in 1899 will be held as usual in the Drill Hall, James Street, Westminster, on Tuesday, January 10, from 1 to 4 P.M. The Scientific Committe will meet in the library on the same day, at 4 P.M.

THE "JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY."—The part just issued is one of even greater interest than usual. Mr. SHERWOOD'S paper on the history of garden Peas is very interesting from many points of view. The extent to which variation has been carried may be judged from the circumstance here mentioned, that Messrs. HURST had last season nearly 700 rows of Peas for comparison. Of course, a considerable proportion of these were distinct only in name, but, in any case, the amount of variation and the progressive improvement that have been secured are very noteworthy. Mr. FREEMAN-MITFORD'S paper on the economic uses of the Bamboo is an apt complement to his former memoir on this subject. M. LATOUR MARLIAC'S paper on hardy Water Lilies will be read with interest by those who cultivate these lovely plants. Twenty-seven varieties are described, and seven more are promised. Mr. HUDSON'S paper narrates the experience of that skilful cultivator in dealing with these plants in the vicinity of London. Perpetual Strawberries appeal to the general public as well as to the gardener, and M. DE VILMORIN'S paper will in consequence be read with eager interest. Mr. ROUPELL'S paper on fruit-growing near London is very suggestive. The reports on the Chiswick trials of Cannas, Pelargoniums, Violas, and other plants are useful as far as they go, but it is to be regretted that so much good material for scientific investigation is allowed to pass unutilised, with the result that progress in consequence is delayed unnecessarily.

THE ROYAL ACADEMY OF SCIENCES founded in Paris in 1666, held its first public meeting on April 29, 1699.

LIÈGE: THE BOTANICAL INSTITUTE.—Under the auspices of the University of Liège, the Botanical Institute has now issued the first volume of its *Archives*. It consists of a record of certain researches made by the pupils under the direction of Professor GRAVIS. The aim of the Professor is to investigate the minute anatomy of the several orders on a definite plan, so as to permit of comparison being made, as is done in the case of systematic botany. Much of the work done in modern botanical laboratories is defective in this particular. Very little pains are taken to ascertain the correctness of the name of the plant selected for examination, and hitherto but little has been done save by VESQUE, RADLKOFER, and a few others, to treat histological characters in exactly the same way that ordinary "naked-eye" appearances are dealt with by systematic botanists. In other words, comparison, discrimination, and judgment are, to the full, as necessary in the study of minute anatomy as they are in that of external morphology. The anatomy of certain genera of Ranunculaceæ, such as Delphinium, Thalictrum, and Clematis, is dealt with in detail by MM. LENFANT, MANSION, and STERCKX. Numerous illustrations are given, so that the value of these communications to the future historian of the order will be incalculable.

FRENCH HORTICULTURAL SOCIETY OF LONDON.—We are informed that the annual dinner of the French Horticultural Society of London will take place on Saturday, the 14th inst., at the Imperial Restaurant, Strand.

MR. BRISCOE-IRONSIDE.—Chrysanthemum-growers who remember Mr. BRISCOE-IRONSIDE, or who have grown some of his novelties, will be interested to learn that henceforth that gentleman will leave the ranks of the amateur and take to Chrysanthemum culture professionally. In conjunction with an Italian amateur cultivator of the popular autumn flower, Dr. STROPPA, we learn that Mr. BRISCOE-IRONSIDE intends to start a nursery close to Milan, where special attention will be given to the flower in every phase. The style of the new firm is Messrs. STROPPA & BRISCOE-IRONSIDE, Chrysanthemum Specialists, Tradate, Lombardy, Italy.

COLONIAL PARCEL POST.—On and after January 1, 1899, the postage to be prepaid on parcels for the under-mentioned places will be, for each parcel weighing not over 3 lb., 1*s.*; over 3 lb., but not over 7 lb., 2*s.*; over 7 lb., but not over 11 lb., 3*s.*:—Antigua, Ascension, Bahamas, Barbados, British East Africa, British Honduras, Beyrout, Ceylon, Constantinople (by direct steamer), Cyprus, Dominica, Falkland Islands, Gambia, Gibraltar, Gold Coast Colony, Grenada, Johore (viâ Singapore), Lagos (Africa), Malta (by direct steamer), Montserrat, Nevis, Newfoundland, Niger Coast Protectorate, Niger Territory, St. Helena, St. Kitts, St. Lucia, St. Vincent (West Indies), Sarawak, Seychelles, Sierra Leone, Smyrna (by direct steamer), Straits Settlements, Tobago, Tortola, Trinidad. A similar change will be made in the postage on parcels from these places for the United Kingdom. The parcel-postage to and from other British possessions, protectorates, &c., will remain unchanged.

"DICTIONNAIRE PRATIQUE D'HORTICULTURE."—This is now approaching completion, and should find a place in every garden-library where the French language forms no bar to its use. One very useful feature in the part before us, and one which found no place in the English edition, is a complete list arranged according to the natural orders of the genera described in the book. It often happens that the gardener knows the natural order of a particular plant, but that the genera are so numerous, that even a professed botanist cannot, without the aid of a herbarium, and the expenditure of much time, ascertain to what genus his plant belongs. A list such as is now given us of those genera only which are in cultivation reduces the difficulty very materially, and will supply many a hint to anyone who knows the principal natural orders at sight. The *Dictionnaire* is published by Mr. OCTAVE DOIN, 8, Place l'Odéon, Paris.

PRESENTATION.—Mr. GEORGE WALL, for the past twelve years head gardener to W. S. GILBERT, Esq., Grims Dyke, Harrow Weald, was the recipient last week of a handsome silver inkstand, presented by the garden staff on the occasion of his resigning the charge of the garden at Grims Dyke. Mr. WALL carries with him from the neighbourhood the best wishes of a large circle of gardening friends, to whom he has endeared himself by his ability as a gardener, and his courtesy.

SEA-WATER, AND ITS EFFECTS ON VEGETATION.—Should sea-water be brought to London under the London Sea-water Company's Act (59 & 60 Vict. c. 158), and the water be employed for street watering, we fear that, unless some means are taken to prevent its ingress to the soil in which our roadside trees are growing, that these will eventually be destroyed. Where wood-paving is used, the stratum of concrete beneath the wood-blocks may act as a preventative of the penetration of the water, and the same holds good of asphalte roads. The chief danger lies where macadam or ordinary stone pitching are the materials forming the road, and beneath which the roots of the trees lining the road or standing in adjacent forecourts and gardens are found in considerable numbers. Those responsible for the watering of such roads and streets should be empowered to use only water taken from the existing fresh-water mains, otherwise irreparable injury will be done to the admirable arboreal vegetation bordering some of our finest thoroughfares.

THE LUXEMBOURG GARDEN.—It is proposed to erect in this charming Parisian garden a statue to DAUDET, not far from that of WATTEAU. The gardens themselves have, under a succession of architect-directors unacquainted with horticulture, and with no feeling for the beauties of plants, acquired many undesirable and useless features, but enough remains to fill the lover of a garden with delight. It was once the richer for a large collection of Roses and of Vines, but the latter were removed many years ago to the Jardin d'Acclimatation, and it now contains an excellent collection of Orchids and Camellias, and a large number of Oleanders, grown in big tubs; the latter, being of great size, make splendid objects when in bloom. The success attending the culture of the Oleander in Paris is probably due to the early formation and ripening of the wood, and the complete rest obtained in the orangery in the winter.

WALTHAM CROSS ROSES.—We have received a volume including, in chronological order, the catalogues of the Roses cultivated and sent out by Messrs. WILLIAM PAUL & SON, of Waltham Cross, Herts, from 1883 to 1897. It forms a wonderful record of gardening work during these fourteen years, and is likely to be constantly referred to by rosarians. The lists of varieties are well arranged, and there are many illustrations; some in black and white, others brightly coloured. The uninitiated will be astonished to see so large a catalogue of known and named Roses, all so beautiful as to render selection difficult. It is not wonderful that Mr. WILLIAM PAUL is "famous for his Roses all over the world," since the share he has taken in their cultivation has been largely instrumental in bringing them to such a high degree of perfection.

THE NEW GULLIVER; OR, TRAVELS IN ATHOMIA, by CHAS. T. DRUERY, F.L.S., V.M.H.—We are asked to state that owing to the failure of his publishers, the author has determined to issue this book himself, from his address, 11, Shac Road, Acton, W.

"THE POND-WEEDS OF THE BRITISH ISLES."—Mr. ALFRED FRYER, with the assistance of Mr. ROBERT MORGAN, as artist, has had the boldness to undertake, and what is more to publish, a monograph of the species and varieties of Potamogeton native to the British Isles. The work is published in parts, of which six are now before us. Each species is described at length, and forms the subject of a royal 4to coloured plate. The pond-weeds are subject to a large amount of variation according to the age of the plant, and the conditions under which it is growing. This fact of itself accounts for much of the difficulty in determining and delineating the species. A greater source of difficulty arises from the frequent occurrence of hybrids. Mr. FRYER has not been contented solely with examining the plants in their wild state, but he has cultivated them and watched them during growth, thus ascertaining what variations are mere stages of growth, and also witnessing the gradual reversion of many of the so-called varieties to the original type. Some of the hybrids are sterile, others are fertile, while others show evidence of multiple parentage. The evidences of hybridisation in this genus seem to be all indirect or inferential; possibly, later on, we may be favoured with the results of the author's experiments with the plants under cultivation, and he may produce artificially the same hybrid forms which he meets with naturally—as has been done in the case of numerous Orchids. In any case, botanists and students of variation are under great obligations to Mr. FRYER for the production of this very interesting monograph. The publishers are Messrs. LOVELL REEVE & Co., Henrietta Street, Covent Garden.

THE SEMAINE HORTICOLE.—This newly-established journal is now entering upon its third year. Founded and managed by M. LUCIEN LINDEN, it is now about to be transferred to a company, and is to be conducted entirely on an independent basis. Its scope is to be extended so as to include matters relating to colonial agriculture, especially in reference to the Congo State. For this reason the *Semaine Horticole* will add to its title that of *Revue des Cultures Coloniales.* More attention than hitherto will be given to fruit culture and market-gardening. We wish it every success.

OPEN SPACES: PETERSHAM COMMON.—The Board of Agriculture, in response to a memorial addressed to them, have drawn up a scheme, in pursuance of the Metropolitan Commons Acts, 1886–98, in respect of Petersham Common. The scheme provides that the common shall be regulated and managed by the Corporation of Richmond, who are empowered to execute drainage and other improvements, to plant trees and shrubs, and render the ground more pleasant for recreation and exercise, but are inhibited from doing anything that shall otherwise alter its natural features, or interfere with free access to every part. The Richmond Town Council are also deputed to frame bye-laws for the prevention of nuisances, trespasses, or injury to the common, and for the regulation of games and of assemblages of persons thereon.

GARDEN YEAR-BOOKS.—THE HORTICULTURAL DIRECTORY (12, Mitre Court Chambers, Fleet Street).—Forty years of experience afford sufficiently satisfactory evidence that this unpretending little volume is just what the gardener wants. The directions for preparing the Bordeaux Mixture might be more explicit with advantage; and the list of commission-agents and salesmen in Covent Garden might be considerably extended. The new postal regulations are included, and every attempt has been made to bring this useful publication up to date.

THE GARDEN ANNUAL (37, Southampton Street) necessarily covers much the same ground as its older competitor. More space is allotted to seasonable work, and the adoption of black-faced type in some parts of the book is an advantage. A list, by no means a complete one, is given of some of the principal public parks and gardens. In the postal regulations we fail to find mention of the recent changes, or of the rates for foreign postage; but, on the other hand, there is a very useful note relating to the Parcel-post for plants. Gardeners will find this a very serviceable "annual."

A NEW TEXT-BOOK OF BOTANY.—An Elementary Text-book of Botany, by SYDNEY VINES, M.A. This work is issued to meet a demand for a less bulky volume than the author's *Students' Text-book of Botany.* It is intended as a book of reference for the student, and hence does not include any accounts of the methods of examining plants, either as to their external morphology, or their minute anatomy. Nor are the subjects of fossil botany and the distribution of plants throughout the various regions of the globe touched upon. It deals with morphology, minute anatomy, physiology, and classification, and thus supplies a more complete view of the science than do most modern text-books. It is matter for surprise that Prof. Vines has been enabled to comprise so much within the compass of some 600 pages. Needless to say, the information is accurate and up to date; whilst the style is clear, and the convenience of the student is considered by the inclusion of two indexes and a table of contents. The work is one to be strongly commended. It may be had from Messrs. SWAN, SONNENSCHEIN & Co.

LILIUM HENRYI.—Although perfectly hardy at Kew, this species has thriven in the large Temperate-house ever since its introduction, the stems attaining a height from 8 to 10 feet. A bulb grown in this house and recently lifted weighed, after being washed and divested of roots, 2¼ lb., and measured 18 inches in girth. The scales are dull vinous purple in colour. This bulb is about six years old.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* will take place at the Hotel Windsor, Victoria Street, S.W., on Tuesday, January 10, at 6 P.M. The subject for discussion will be "A Chat about Chrysanthemums," to be opened by Mr. C. E. SHEA.

NATIONAL ROSE SOCIETY.—A meeting of the General Purposes Committee will be held at the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, the 10th inst., at 2 P.M. H. HONYWOOD DOMBRAIN, EDWARD MAWLEY, Hon. Secretaries.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Mr. C. J. INGRAM, Secretary, desires us to inform the friends of the Institution that the annual friendly supper will take place on Thursday, January 19, at 6 o'clock sharp, at "Simpson's," 101, Strand, W.C., George Monro, Esq. (of Covent Garden) in the chair.

Sherborne Castle Gardens.—A successor to the late Mr. Pragnell, the well-known gardener at this place, has been found, in one not less known, and not less worthy, in the person of Mr. Thomas Turton, who has for twenty years been head gardener at Maiden Erlegh, Reading. Mr. Turton has so long been well known as an excellent gardener, energetic and enthusiastic, that his retirement from Reading will be a great loss. Sincerely esteemed and respected by all brought into contact with him, his fellow-gardeners have shown their confidence by making him during the present year the chairman of their Mutual Improvement Association. He has been actively associated with the local horticultural societies for many years. One of the late Wildsmith's young men at Heckfield Place, he has, in common with so many others who went from Heckfield, done ample justice to the training he received whilst working there.

Publications Received.—*Journal of the Essex Technical Laboratories*, vol. iii. (1897). Edited by David Houston, F.L.S. This monthly bulletin includes papers upon: Essential Soil Constituents, by T. S. Dymond; Poisonous Plants of Essex, by J. C. Shenstone; Pruning Orchard Trees, C. Wakely; Propagation of Plants, C. Wakely; Prevention of Potato Disease, W. G. Watkins; and other horticultural and agricultural matters.—*The Chrysanthemum*, H. J. Jones. A cheap useful pamphlet, published by Biggs & Son, Salisbury Court, E.C., giving brief notes on the history and cultivation of the Chrysanthemum, and lists of the best varieties of different forms.—*Bulletin of the Botanical Department, Jamaica*, November, 1898. Contains notes upon Ginger in Jamaica, Tobacco in the United States, Cotton-seed Oil Industry, and Gas-lime in Agriculture.—*Genossenschaft "Flora," Gesellschaft für Botanik und Gartenbau zu Dresden.* Sitzungsberichte und Abhandlungen, 1897-1898. (*Transactions of the Botanical and Horticultural Society of Dresden.*) Contains an important paper upon the Cynipidæ of Saxony and their Galls, by Max Riedel, Dresden.—Davenport's (Brewery, Ltd., Birmingham), *Pocket Book and Diary for* 1889, a useful well got-up publication, with much of the usual kind of information in request every day, together with matters connected with sport.—*My Garden Diary for* 1899: Messrs. Sutton & Sons, Reading. A tastefully got up little manual, furnished with a calendar of the month on the right-hand pages, together with space for making memoranda. The left-hand pages contain directions for the gardener during the month.

PLANT PORTRAITS.

Bignonia buccinatoria, a magnificent creeper, hardy in the Riviera; flowers 3½ inches long, scarlet-crimson. *Revue Horticole*, December 16.

Pear Petite Marguerite.—Little Margaret is a Pear of much excellence, ripe at the end of August. *Gartenflora*, t. 1457.

HOME CORRESPONDENCE.

MR. EDWARD WHITTALL.—Those who understood that the Mr. Edward Whittall who was captured by brigands was the good friend who has been the means of introducing so many new bulbs from the Smyrna district, will be gratified to know that this is not so. The sufferer was a nephew of Mr. Whittall, who, fortunately, was young and athletic, and is none the worse for his experiences. What has occurred will, however, make us realise more than we have hitherto done the earnestness of our kind friend in his plant-hunting expeditions, and the risks they bring. The brighter side of the picture is seen in a letter from Mr. Whittall, dated December 21, in which he speaks of the glorious weather they have had up to that date, and of the sunlit, balmy days, with gardens bright with winter and summer flowers all in full bloom. I take the liberty of quoting a few words from his letter:—"Just picture to yourself a beautiful white Camellia, with a background of red Geraniums and many-coloured Cannas, or else a bank of Rose-trees, with a foreground of Heliotrope and white Hyacinths. Such are the sights we have before us to-day, and wonderful are the effects alongside of the autumn tints of the tree-foliage. I have never seen such a thing before." *S. Arnott, Carsethorn, by Dumfries, N.B.*

INCOME-TAX REPAYMENTS.—As most of your readers, who are engaged in business, are now ascertaining the amount of their profits for the year 1898, will you allow us to remind them that, if such profits show a diminution, or are less than the amount upon which they have been assessed for Income-tax, they may be entitled to the repayment of a considerable portion of the Income-tax paid in respect of the same, and to point out the importance of making the claim forthwith. Many traders and others submit to over-charges because they feel that it is hopeless to appeal against their assessments, having failed on previous occasions to get the same reduced. In most cases that have come under our notice we have found that the reason why they have failed is that they have not furnished the commissioners with proper accounts, which are absolutely necessary to enable them to satisfy themselves that the assessment is excessive. Others, again, have neglected to keep any accounts of their business transactions. If proper accounts be kept, or even if a proper cash account be presented (which is very simple by using the *Taxpayers' Cash-Book*), there is but little difficulty in establishing a claim. The increase in the abatements now allowed in respect of incomes not exceeding £700 per annum renders it well worth while to take the little trouble necessary to keep a proper record of business transactions, as the relief granted to persons with small incomes is considerable. Thousands of people pay tax for which they are not liable, more particularly those whose incomes are derived from property and investments where tax is deducted before being paid to the recipients, or when dividends are paid "free of Income-tax." Claims can in many cases now be made for four years, and the sum repayable might in the case of private incomes alone exceed £42 up to the end of the current financial year, to say nothing of the tax allowed in respect of life insurance premiums, even when the income exceeds £700. We shall be glad to advise any of your readers, gratuitously, whether they can make a claim, if they send us full particulars of their incomes and a stamped addressed envelope. *The Income-tax Adjustment Agency*, 12 *and* 13, *Poultry, London, E C., December* 28, 1898.

NATURE'S COMPENSATIONS.—When it is suggested that in our more northerly latitudes we lose so much that is beautiful in the winter months, because nearly all our trees and so many of our shrubs are deciduous, those who so criticise seem to forget that we get variety in very diverse forms, and that in such variety alone do we find great compensations. But after all, is it to live in a paradise or an elysium to exist in a country where the foliage is ever green and leafage is perpetual? may there not be even under such conditions much that is monotonous and wearisome. It is true, that the home resident, passing from frost and snow into the huge temperate or tropical houses, at Kew, for instance, may like and appreciate the change, but living perennially in such surroundings may well make him sigh for those natural variations which European countries furnish. And after all, what in all Nature can be more beautiful than seeing vast masses of overhanging trees, the tiniest portion of spray, on which is glistening and sparkling in the wintry sunlight with hoar-frost? Nothing that the wildest imaginary fairyland can produce can equal such a spectacle in its wondrous beauty. But even when there is no frost, and every branch and shoot on tree is bare, is there not in the singularly effective tracery the varied forms of tree-branch presents against the sky, much that compensates for loss of leafage. Nay, where the trees ever in leaf we should neither see nor realise how great is the wealth of beauty thus furnished. And then see the varied forms which tree-branches present. The lofty Elm, the broad stately Oak, the giant and round-headed Horse-Chestnut, the grand Plane, or the tall Lime, the loftier Poplar, or not least the drooping and refined Birch and Beech, with their pleasing spray. How all these, in their exceeding diversities of form and beauty, stand out in marked contrast to the heavily-clothed and somewhat funereal aspect presented by the cone-shaped Firs, or more highly-cultivated Conifers. If the latter seem oppressive and mournful objects in the landscape, we have in the light varied branches of the deciduous trees a delightful foil, and an effective refresher of the soil. But apart from these compensations, there are the singularly beautiful foliage changes seen in the autumn, which, if evanescent, yet are, whilst they last, brilliantly lovely. Leafage dies, not of the lugubrious black, which humans favour as typical of decay. Rather does it, as if in joyous anticipation of change and recreation, or resurrection in other forms, clothe itself in rich and beautiful tints, making the landscape to revel in golds, pinks, browns, reds, yellows, and many other sunset hues. What tropical country, what latitude of perennial green, can furnish anything so delightful as is found in the annual decay of leaves? And then further, when, after a few months of defoliation, the warmer forces of spring commence to operate, what in all Nature then is more pleasing than that presented in the new leafage, expanding slowly, yet in so many diverse shades of the normal green? Here again is a fairy-like change—a literal transformation-scene. How with the clothing of the trees in living green comes with it the awakening of Nature in every direction. The grass puts on its hue of rich verdure, the Ferns once more send up their fronds, the Furze blossoms, the birds twitter and sing, the insects chirp and hum, and all the land is alive with beauty and harmony. Really our compensations excel greatly our losses. *A. D.*

THE SHREWSBURY GRAPE CLASSES.—I desire to support "Exhibitor's" wish to see a scale of relative value for judging. I find in the *Horticultural Handbook and Exhibitors' Guide* a system of judging exhibits by relative value, which meets the case of Grape-judging admirably. In the method there given, cultural value and relative merit are adjudged separately, and the result put in different columns. The maximum for cultural value is given at five points, and the maximum of relative merit at 1·. the difference between the kinds being computed in decimals, which is simple and appropriate, although generally not well understood. The maximum is accorded to varieties with Muscat flavour and good appearance, the scale descending as low as ·2, which represents the comparative value in competition of the variety White Nice. This subject of relative value is coming rapidly to the front; and if it has not been dealt with in the R. H. S. new rules, which I have not yet seen, I am afraid the amendments will soon require amending. Another point of the utmost necessity is to place cards on the exhibits giving the results in all important contests when pointing is recommended. Where this is done, the greatest interest is manifested, not only by exhibitors, but by the public generally. I admit that such a process exposes the judges to criticism in case they have slipped; but it also increases his watchfulness against mistakes. I am afraid there will always be "vagaries" of judges; but if a scheme of relative value were acted upon, one stumbling-block at any rate, would be removed. The cultural merit would still have to be dealt with, and a judge is not worth his salt who cannot determine how far short of perfection a bunch of Grapes is that has a slight defect in any respect. I hope to submit in a future issue a scale showing the relative value of Grapes, based on the system mentioned above. *Ayrshire Lad.*

OULTON HALL, LEEDS.—A change in the management of the gardens at the above-named place has recently occurred. Oulton belongs to the "Calverley" family, who have been connected with the West Riding of Yorkshire for a long period of time. The present owner is John Selwyn Calverley, Esq. Through the kindness of this gentleman, Mr. Richard Walker, who has been gardener at Oulton forty-three years, is retiring on a good allowance. During the time he has been there he has served three generations of the family. For some years before the finer varieties of Gloxinias were so generally cultivated as they now are, Mr. Walker had, by hybridising and selection, got together a fine strain—in fact, I believe he was one of the first gardeners who took the subject in hand. He has also possessed for a long time excellent strains of his own selection, both of Cyclamens and herbaceous Calceolarias. Mr. Walker was a close reader of the gardening press and of standard works on horticulture. While not, perhaps, so well known as some gardeners, he was all along considered, by those who knew him personally, an intelligent gardener. Moreover, he could give reasons for the horticultural faith he put into general practice. He will carry into his retirement the respect and good wishes of all who know him. His successor at Oulton is Mr. McFarlane, for some time past gardener at Stapleton Park, Pontefract. It is said the gardens generally in his new charge are to undergo a thorough renovation, hence the opportunity to put his well-known practical skill to good account. *H. J. C.*

TRAINING TOMATOS SPIRALLY.—Unless due to a printer's error, which converted "five" into "fine" [This was so. Ed.], Mr. Mackinlay does not tell us on p. 444 how many stakes he used to each Tomato-plant, but it is evident three or more must have been employed to form the needed columnar support. When at Wrest Park two or three years ago, I saw on the walls a remarkable crop of Tomatos. If the spirally-trained plants on stakes in the open ground gave better results last season, as compared with those grown on walls, then must the crop have been exceptionally good. The plan seems to be novel, and may, when clearly explained, be widely copied. That bending or depression of the stems conduces to fruitfulness, there can be no doubt. Very recently I saw at Clandon Park a large number of plants growing in a pit, the stems for some 2½ feet in height being bent into serpentine form, having previously borne fruit, so as to bring the upper portions of the plants more immediately under the lights, and each was carrying a heavy crop that should give plenty of ripe fruit up to the end of January. *A. D.*

MANURE AND PLANT ASH.—I read with interest the report of Mr. A. D. Hall's lecture upon Artificial Manures reported in the *Gardeners' Chronicle* of November 26. It would be more satisfactory before accepting his statement that "the composition of the ash of a plant bears no part or relation to the manure that it needs to be afforded by the soil," to learn from the results of what experiments he came to his conclusion. I should like, with your kind permission, to ask the following questions:—(1) Was the soil analysed previous to use? (2) Was a manure used which gave the same analysis as that of the plant-ash, taking into consideration those constituents in the soil which were found in the plant-ash? (3) Was the soil analysed after the plant finished growing? (4) Was the ash of the plant in question analysed? In the case of the Grape-vine, M. Ville, the eminent French chemist, proved that Grapes could not be grown without potash, and that without it the plant does not increase in dry weight. In the case of iron, also, though met with in very small quantities, it is absolutely necessary for the formation of chlorophyll, for the leaves of plants not supplied with it during their growth become "chlorotic" as soon as their own store is used up, and become green again only on the application of iron. From the statement quoted above, it would follow that plants would grow alike in all soils alike, yet how different is the case? The results of the experiments from which the statement is made would throw a great deal of light upon the subject. *Geo. W. Allen.*

THE LUCOMBE OAK.—The age of the Killerton specimen, referred to at pp. 416 and 461 of the last volume, is consistent with the account of the origin of this variety given by John Zephaniah Holwell in *Phil. Trans.*, Feb. 24, 1773. He says that the parent tree at Exeter was then seven years old, when it measured 21 feet in height and 20 inches in girth. A six-years'-old graft from the original was at that time 23 feet high. He adds: "Several gentlemen round this neighbourhood (Exeter), and in the adjoining counties of Cornwall and Somerset, have planted them, and they are found to flourish in all soils." Seeing, then, that William Lucombe raised it as a seedling in 1766, and had grafted some thousands of it in 1773, when Holwell saw them in the nursery at St. Thomas, Exeter, it is highly probable that the Killerton tree is 120 years old at the present time. *A. Hope.*

LAPAGERIAS IN THE OPEN AIR.—It may be interesting to your correspondents, "R. B. L." and "D. T. F." to know that a plant of Lapageria rosea, trained on a west wall in a private garden in West Argyllshire, Scotland, was in 1886 growing and flowering freely. The plant had been there for some years, and was unprotected during winter. As to the colour of flowers, my experience is that an excess of heat during the flowering season takes away the rich crimson colour, and makes the flowers light and transparent. *J. A.*

BEGONIA GLOIRE DE LORRAINE.—While perusing the pages of your issue of December 17 last, I was pleased to find an interesting little notice concerning this plant, writen by Mr. George Burrows of King's Norton; also a representation of the houseful of the plant to be seen in the gardens at Highbury, Birmingham. Having visited those gardens several times during the blooming period of the plants, which has already extended over three months, and bids fair to continue its progress well into next March, I should like to add a few words to what has already been said. The glasshouse, figured in the *Gardeners' Chronicle*, is 28 feet by 12 feet, span-roofed, and is one of an extensive range leading out of the creeper-covered corridor, which last, together with the interior of each house, represents a floral panorama of much beauty. The whole of the house is devoted to the Begonia, with the exception of a few exotic grasses, Adiantums, and Tradescantia zebrina multicolor. The plants, to the number of 150, are suspended from the roof, hanging in such a profusion of bloom as entirely to cover the pots, and completely hide the roof. Each plant has from 300 to 400 blooms upon the leading shoots. Disposed among the other plants were to be seen other fine specimens, whilst beneath the staging creeping-plants of various species were visible. Mr. Deacon, the gardener, says that his success with Begonia Lorraine is due to the regular temperature of the house, which from the commencement of the blooming period has been maintained at 60°, and the air uniformly moist. Mr. Burrows gave as the constituents of the soil used at Highbury, peat in a certain ratio, but Mr. Deacon informed me that the plants are grown in a compost which consists of yellow loam, silver-sand, and well-decayed leaf-mould; it is, nevertheless, satisfactory to know that Begonia Gloire de Lorraine is not fastidious as to soil. *Walter B. Child, Acocks Green.*

EUCALYPTUS GLOBULUS IN THE OPEN.—At Braymead, near Maidenhead, it may interest my fellow readers of the *Gardeners' Chronicle* to know that we have here the familiar Blue Gum-tree planted out in the pleasure-grounds, and standing 18 feet in height, from seeds sown at the beginning of the month of January, 1897, grown on in heat, and planted out the same season. They have been unprotected ever since the recent frost that registered here 13° on December 22, which took no effect on them whatever. I report this, as Eucalyptus Globulus is considered amongst so many not so hardy, as we find them here planted out in exposed positions. [If these Eucalypts are protected from the coldest winds they are really hardy in our warmer maritime counties. Ed.] *A. R. Pearce, Braymead Gardens.*

OUR CROWN WOODLANDS.—On p. 418 of the last volume of the *Gardeners' Chronicle*, Mr. H. C. Walker comments upon what he terms my "attack" on the management of the State forests, and objects to a particular passage therein. I think Mr. Walker will find this latter refers to the Crown woodlands generally, and not to the Forest of Dean alone; but if these woodlands are worked on a "definite plan of operations," it would be interesting to learn why the management of the New Forest differs so widely from that of the Forest of Dean, and why the "best financial results" should be the guiding policy in the case of the latter, and a useless and wasteful method of conservation in the case of the former. I found no fault with the "elaborate" working plan for the Forest of Dean (which Mr. Walker thinks beyond the comprehension of all but Indian and Continental foresters) as a mere tabulated statement of facts and suggestions; but I am surely justified in asking why the "few tourists" who frequent this forest should be denied the same consideration that the probably equally few tourists in the New Forest are granted, to the disadvantage of future generations. The improvement of Crown or other British woodlands will not be affected by the wholesale introduction of working plans more or less made in Germany, but will be brought about, if at all, by skilful and judicious treatment which is not bound down by any hard-and-fast line. Private estate owners will never adopt any working plan which does not provide for the preservation of picturesque, timber and game-preserving facilities in the vicinity of their mansion-houses; and as the majority of estate woodlands fall under this proviso, strictly economic management becomes a difficult matter, as practical men know too well. A working plan drawn up for most estates on similar lines to that formed for the Forest of Dean, would not be worth more than the paper it was written on, so far as results were concerned, unless the woods with which it dealt were maintained for growing timber alone, which is rarely the case in England. There is little doubt but that estate woods could be worked more economically than is the case at present, and their picturesque features preserved and improved at the same time, and the Crown woods might demonstrate this fact with advantage to British forestry generally, and with no appreciable loss of revenue to the State. *A. C. Forbes.*

HARICOT BEANS.—Your reference to a preparation of Haricot Beans on p. 463 of the last volume of the *Gardeners' Chronicle*, gives me an opportunity to say that I wonder these Beans are not made a much more general article of diet in English households than appears to be the case. Some time ago, Mr. N. Sherwood, of Messrs. Hurst & Sons, Houndsditch, sent me some small white Beans for cooking, which he designated the small white Haricot, and which I think may be identical with the French Bean or Haricot to which the late Mr. W. B. Booth refers in the *Treasury of Botany*. He appears to regard it as the original form of Phaseolus vulgaris, and he states that it is "of uncertain origin, probably Asiatic, the most generally cultivated in Europe and other temperate climes. Amidst a number of varieties or races, often described as species, it may always be known by its few-flowered peduncles, and by the ovate, striate bracts at the base of the calyx." The Bean Mr. Sherwood sent me is very small compared with those of most of the cultivated varieties, white, and egg-shaped, approaching the round rather than the flat form. Large seeded varieties are also grown for use in a ripe state, but in all probability the small is cultivated to a much larger extent than the former. Recently Mr. Sherwood has sent me for testing, three samples of apparently the same Bean, but grown in different parts of the world. The smallest sample is of Canadian growth; the next, a little larger in size, is Dutch; and the largest sample, which more nearly approaches the kidney shape, is Galician. These samples will be tested to discover if there is any difference in their quality; the difference in their size is probably owing to the climate in which they were grown. Haricot, as I take it, means a Bean in a dry state. [What about *Haricots* verts. Ed.] It is said this small white Bean is much esteemed in France for field-culture, especially in the western districts, where it is often distinguished by the name of Favette, or little Bean. The pods are long, cylindrical, and well-filled with seeds, and, when ripe, are, as grown in France, about three-eighths of an inch in diameter, and nearly round, and rather swollen than sunk in the eye; medium early, but not well adapted for using in a green state, by reason of the inner skin of the pods being more tough than in most of the others. The difference in the diameter of the samples sent, which Mr. Sherwood thinks represent the same variety, are no doubt owing to climatal conditions. Two methods have been tried in my household in the cooking of these Beans. One has been to soak them in water all night, and put them in boiling water to render them fit for table. The other is to put them into cold water in a saucepan, and allow the water to steadily rise to boiling point. The Beans require to be well boiled, and then they constitute a delicious table-vegetable, served without any accompaniment. Your recipe suggests one way of serving up Haricot Beans in a manner more attractive to the palate. I prefer these Beans to blue-boiling Peas, as I find them to be more tender, delicate, and palatable. *R. D.*

LARGER EXHIBITS REQUIRED AT OUR FLOWER SHOWS.—The time for compiling schedules will be on us immediately, therefore, before it is too late, I venture to offer a few suggestions which, if carried out, would, I venture to assert, be improvements in the matter of exhibiting. Where I should like to see improvement is in the fruit and vegetable classes, these not being represented in sufficient quantity in individual exhibits. Take, for example, a prize given for fifty pods of Peas or

Beans; this cannot be regarded as sufficient to represent the exhibitor's ability—it should be not less than 120 of each. Onions and Potatos are generally shown in dozens; now these could be increased to 1½ dozen, and so on with Tomatos, Turnips, Carrots. Celery, Cabbage, and Cauliflowers are generally shown in threes; no fewer than four or six heads should be shown. Bush-fruit of all kinds is often shown in very small quantities, and I would recommend that plates not less than 8 inches in diameter for holding these fruits, so as to secure larger exhibits. In the case of single dishes of Apples, Pears, Plums, &c., I consider that not fewer than nine or twelve fruits should be shown. Now, in order to compensate the exhibitor, or rather encourage exhibition, all prizes should be increased in proportion, to the evident improvement of the displays at our horticultural shows. *A. J. L., Wyfold Court.*

BEES.—In the issue of the *Gardeners' Chronicle* for Dec. 17, "Expert," the contributor of articles on the Apiary, seems to invite criticism, and if you can afford space I would like to say a few words upon the subject, the ventilation of bee-hives. In ventilating, he says, "some advocate front blocks of wedge shape, and others favour front and rear spaces," &c. All these methods are applicable only to hives furnished with loose bottoms, and a hive without that is of very little good—in fact, you will scarcely find them in the market. Plenty of bottom-ventilation, when the bees show signs of being crowded, is one of the principal methods used to prevent swarming. The hives may be wedged in front, or at the four corners, &c., but a better way which is beginning to come to the front, is to have a hole, about 6 inches or more, cut in the floor-board of the hive, and to tack a piece of perforated zinc on the upper side; underneath is a sliding board to regulate the ventilation as required. Regarding the question, why bees wipe their eyes with their fore legs. If we examine or watch our bees more closely, we can soon discover that it is their antennæ they wipe, not their eyes. I will try and explain it as plainly as possible. On the fore-legs of a bee, at the lower end of the tibia or shank is a spine, to which is attached a sail. In the upper end, and inner side of the palma or lower joint, is a deep incision, the edges of which are covered with hairs. Upon this the spine and sail of the bee can act at the will of the insect, and when the spine is brought down they form a circle. If the bee wishes to clean its antennæ, it lays it within this circle, the hairs removing any foreign substance. They very often give them a wipe before flying from the hive, the antennæ or feelers of the right side being cleaned by the device on the left leg. *J. Guthrie, Bee Expert, Doonfoot, Ayr.*

CURIOSITIES OF ORCHID BREEDING.

ORCHID hybrids have become very numerous, while new ones are constantly being brought to light. Up to the year 1860, we find but four flowered hybrids recorded, raised from distinct crosses; during the thirty years following the numbers gradually increased, until in 1890 there were about 200 enumerated. But it is in the present decade that the most rapid strides have been made, the numbers having increased by leaps and bounds, until at the present time there are on record no less than 800 Orchid hybrids, raised by hand from distinct crosses. These have all flowered in gardens, and have been duly described or recorded in various journals. And when we remember that many of these 800 crosses have been repeated in the same garden, and in other gardens, and that many individual plants may have been obtained from each capsule, we can form an idea of the large numbers of hybrid Orchids that have been raised by hand.

PRIMARY HYBRIDS.

Of the 800 hybrids from distinct crosses now on record, some 500 are primary, i.e., hybrids of the first generation between two different species. A careful examination of these primary hybrids shows that, as a rule, they are fairly intermediate between their parents, partaking of the characters of both, and at the same time perfectly distinct from either. The latter fact is most remarkable, and at once serves to distinguish primary hybrids clearly from all other hybrids. For example, Cypripedium × Leeanum is a typical primary hybrid, and has perhaps been raised more frequently and in larger numbers than any other Orchid hybrid. It was obtained originally by crossing C. insigne (Wallich), ♀, with C. Spicerianum (Rchb. f.), ♂, both well marked and distinct species. The hybrid is fairly intermediate both in its outward characters and in its inner structure (see Prof. Macfarlane on "Minute Structure of Plant Hybrids," *Trans. Roy. Soc. Edin.*, 1891, xxvii., p. 245), and although it has innumerable minor and individual varieties, yet it is always perfectly distinct from both of its parents.

Nor has any intrinsic difference been observed in the reciprocal cross, the same forms appearing equally in the obverse and reverse crosses. Often many varieties are obtained from the same capsule, differing slightly in colour, form and size, but all are specifically C. × Leeanum, and cannot be mistaken for anything else. As it is with C. × Leeanum, so it is with other primary Orchid hybrids, so far as experiments have been made. In short, we find that primary hybrids are, as a rule, so intermediate between their parent species, and so comparatively uniform in character, that they are specifically distinct from both parents.

GENERIC HYBRIDS.

Of the 500 primary hybrids on record, about 100 are generic hybrids, i.e., the parents belonging to different genera. In this respect alone these hybrids are interesting, though no doubt the systematic botanist views them with mixed feelings. It is not so long since generic hybrids were looked upon as anomalies, some of the older naturalists even regarding them as impossible, and forthwith proceeded to beg the whole question by classing those genera which were fertile with one another as species of one. Orchid-growers, at all events, have almost ceased to regard generic hybrids with curiosity, familiarity with them having bred a certain amount of indifference.

A list of the generic hybrids on record up to the end of 1897, together with a diagram showing how twenty-six different genera have been linked together by artificial hybridisation, has been prepared by the writer, and was published in the *Journal of the Royal Horticultural Society* (vol. xxi., April, 1898), and to which those interested in the details of generic Orchid hybrids may be referred.

Generally speaking, primary generic hybrids follow the rule of specific hybrids in bearing the intermediate characters of their parents, with a narrow range of variation.

But there are a few remarkable exceptions to this rule:—

1. Epiphronitis × Veitchi, a hybrid out of Sophronitis grandiflora (Lindl.) by Epidendrum radicans (Pav.).
2. Epi-Cattleya × matutina, a hybrid out of Cattleya Bowringiana (Veitch) by Epidendrum radicans (Pav.).
3. Epi-Lælia × radico-purpurata, a hybrid out of Lælia purpurata (Lindl.) by Epidendrum radicans (Pav.).
4. Epi-Lælia × Charlesworthi, a hybrid out of Lælia cinnabarina (Lindl.) by Epidendrum radicans (Pav.).

These four generic hybrids are very curious indeed, inasmuch as all agree in reproducing the generic characters only of the pollen parent, Epidendrum; without the slightest trace of the peculiar structure of the seed-parents, Sophronitis, Cattleya, and Lælia. Yet in minor characters, in colour, form, and size, the four hybrids distinctly differ from one another, and from their Epidendrum parent.

A close examination reveals the fact that these minor differences correspond with the peculiar differences in the parentage, thus showing that the crosses have really been effected; yet at the same time it must be candidly admitted that did we not know the parentage, we could never have determined it, so overwhelming is the influence of the predominant partner, Epidendrum radicans. It will, no doubt, be observed that E. radicans is the pollen parent in each of the above cases. Curiously enough, when this reed-like E. radicans is crossed with the pseudo-bulbous E. vitellinum (Lindl.), ♀, a similar result is obtained, the offspring E. × radico-vitellinum being scarcely distinguishable from the reed-like E. radicans. Again, when the reed-like E. × O'Brienianum—itself a hybrid out of E. evectum (Hook. f.) by E. radicans—is crossed with the pseudo-bulbous E. vitellinum, ♀, a similar result is obtained, the offspring being reed-like in habit as in the pollen parent. Yet when the reed-like E. radicans is crossed with other reed-like species of Epidendrum, and again when the pseudo-bulbous species of Epidendrum are crossed with species of Lælia, in every case normal hybrids are produced intermediate between their parents.

So far as experiments have been made, it seems quite clear that (1) the species of Cattleya, Lælia, Sophronitis, and the pseudo-bulbous species of Epidendrum, when intercrossed, produce normal hybrids intermediate in character.

(2) The same result is obtained when the reed-like species of Epidendrum are united with one another.

(3) But when the reed-like species of Epidendrum are united with the pseudo-bulbous species of Epidendrum, or with species of Cattleya, Lælia, and Sophronitis, abnormal hybrids are produced, having the essential characters of the reed-like Epidendra. From these facts it might easily be argued that a reed-like Epidendrum was the ancestor not only of the pseudo-bulbous Epidendra, but also of the more highly specialised genera Cattleya, Lælia, and Sophronitis. In that case the pseudo-bulbous Epidendra would form an interesting connecting-link between the lowly reed-like Epidendra and the gorgeous aristocratic Cattleya and Lælia. *C. C. Hurst, in "Nature."*

(To be continued.)

Obituary.

THE LATE MR. PAUL LUTZ.—This well-known Wolverhampton gentleman died at his residence, Newbridge Cottage, on the 30th of last month, after a brief illness, in his 69th year. Mr. Lutz, who was a German by birth, was a naturalised Englishman. He came to this country nearly fifty years ago, and entered the service of Messrs. John Moreton & Co., of Wolverhampton, rising by degrees in their esteem and confidence until he became trustee for the late Mr. Moreton, and confidential manager of the business carried on by the firm. Mr. Lutz was known far and wide as a devoted amateur florist, his special flowers being Pansies, Violas, and Roses. He was ever ready and generous with his support to horticultural societies. For a time he was chairman of the Floral Committee of the Wolverhampton Floral *Fête*, and during his term of office gave handsome prizes for Violas and Pansies. Mr. Lutz's floral friends were men like the late Mr. Wm. Dean, of Birmingham, and Mr. James Dobbie, of Rothesay. Mr. Lutz and his wife spent their holidays at Rothesay last summer, staying with Mr. Dobbie, where doubtless their battles were "fought o'er again" around the social board. Mr. Lutz, who had a keen artistic faculty, was the possessor of a fine collection of paintings, embracing examples by Geo. Moreland, Landseer, Lawrence, and others; and the Wolverhampton Art Gallery is enriched by a fine picture presented by him.

TRADE NOTICE.

MESSRS. T. METHVEN & SONS, nurserymen, 15, Princes Street and Leith Walk, Edinburgh, request us to announce the fact that, in order to meet the increasing demands on their nursery department, they have acquired the lease of the Baugholm Nurseries (so long in the occupation of the well-known firm of Peter Lawson & Son), and will be in a position to offer all kinds of nursery stock.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.					Rainfall.			Bright Sun.	
	Above (+) or below (−) the Mean for the week ending December 31.	Accumulated. Above 42° for the Week.	Accumulated. Below 42° for the Week.	Accumulated. Above 42°, difference from Mean since January 2, 1898.	Accumulated. Below 42°, difference from Mean since January 2, 1898.	More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	2 +	8	29	+ 355	− 287	9 +	262	66·7	14	28
1	2 +	7	34	+ 255	− 300	4 +	204	30·4	9	30
2	3 +	11	24	+ 388	− 307	4 +	176	22·4	13	20
3	4 +	15	29	+ 338	− 320	3 +	156	20·3	27	35
4	4 +	14	26	+ 282	− 339	7 +	162	21·8	18	32
5	5 +	29	9	+ 431	− 349	7 +	150	21·9	19	36
6	4 +	23	10	+ 366	− 314	9 +	228	46·7	15	30
7	4 +	24	8	+ 442	− 335	8 +	202	34·3	12	33
8	5 +	34	4	+ 465	− 220	13 +	188	35·7	23	39
9	3 +	23	10	+ 386	− 266	5 +	245	38·3	24	29
10	4 +	30	2	+ 510	− 214	9 +	208	39·6	23	34
*	3 +	39	0	+ 662	− 116	11 +	208	28·3	24	46

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending December 31, is furnished from the Meteorological Office:—

"The *weather* during this period was extremely changeable. Much rain fell over the kingdom generally—especially in the west and north—but several fine bright intervals were experienced over Ireland and the greater part of England.

"The *temperature* continued above the mean, the excess varying from 2° in 'Scotland, N. and E.,' to 4° or 5° in most other districts. The highest of the maxima were recorded during the earlier days of the week, and ranged from 57° in 'Scotland, E.,' 'England, N.W.,' and 'Ireland, S.,' to 53° in 'Scotland, N.' The lowest of the minima which were registered on the 31st, ranged from 16° in 'Scotland, E.' (at Braemar), 22° in 'Scotland, N.' and 'England, N.E.,' and 23° in 'Scotland, W.' and the 'Midland Counties,' to 29° in 'Ireland, S.,' and to 36° in the 'Channel Islands.'

"The *rainfall* exceeded the mean in all districts, the excess being considerable generally, and especially so in the west.

"The *bright sunshine* was rather in excess of the mean in most districts, the percentage of the possible duration ranging from 27 in 'England, E.,' and 23 or 24 in Ireland and England, S.W., to 12 in 'England, N.W.,' and to 9 in 'Scotland, E.'"

WEATHER IN 1898.—A summary of temperature, rainfall, and duration of bright sunshine in the United Kingdom has been issued by the Meteorological Office, showing the accumulated results for the fifty-two weeks ending December 31. The temperature for the year was everywhere largely in excess of the average, the mean for the whole period being about 2° higher than usual. The excess of temperature was fairly similar over the whole country. The aggregate rainfall results differed materially in different districts. In the north of Scotland, where the total rainfall was 66·7 in., there was an excess of 16·2 in., and rain fell on 262 days, which is seventeen more than usual. There was a slight excess of rain over the whole of Ireland, the greatest excess being 0·5 in. in the south. There was a deficiency of rain over the whole of England, and in the east and west of Scotland. The greatest deficiency for the year was 7·6 inches in the south of England, where the total fall for the year was 21·9 in. In the Midland counties the excess was 6·7 in., in the east of England 6 in., and in the Channel Islands 5·8 in. There was an excess of sunshine in the north and west of our islands, but generally a slight deficiency in the south and east. At Greenwich the total rainfall for the year was 18·78 in., which is 5·78 in. less than the average for the previous fifty years. May, October, November, and December, were the only months with an excess of rain. The mean temperature for the year was 52°, which is 2° above the average. Every month was warm except March, May, and June. The temperature ranged from 92° in September to 26° in February.

MARKETS.

COVENT GARDEN, JANUARY 5.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. ED.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		*s. d. s. d.*
Arbor Vitæ, p. doz.	12 0-36 0	Ferns, small, per 100	4 0- 6 0
Aspidistras, p. doz.	18 0-36 0	Ficus elastica, each	1 0- 5 0
— specimen, each	5 0-10 0	Foliage plants, var., each	1 0- 5 0
Dracænas, various, per doz.	12 0-30 0	Lycopodiums, doz.	3 0- 4 0
— viridis, p. doz.	9 0-18 0	Marguerites Daisy, per dozen	6 0- 8 0
Euonymus, various, per dozen	6 0-18 0	Myrtles, per doz.	6 0- 9 0
Evergreens, in var., per dozen	6 0-24 0	Palms, various, ea.	1 0-15 0
Ferns, in variety, per dozen	4 0-12 0	— specimens, ea.	21 0-63 0
		Scarlets, per doz.	4 0- 6 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		*s. d. s. d.*
Arum Lilies, dozen blooms	6 0- 8 0	Narcissus, White, p. dozen bunches	2 0- 4 0
Asparagus Fern, bun.	2 0- 3 0	Orchids, doz. blooms	6 0-12 0
Azalea, white, 12bms.	1 0- 1 3	Pelargoniums, doz. bunches	6 0- 9 0
Bouvardias, per bun.	0 6- 0 8	— scarlet, per doz. bunches	8 0-10 0
Carnations, per doz. blooms	2 0- 3 0	Pink Roses, per dozen	4 0- 6 0
Eucharis, per dozen	2 6- 4 0	Roses (indoor), doz.	1 6- 2 0
Gardenias, per doz.	2 0- 3 0	— Tea, white, doz.	3 0- 4 0
Hyacinths, Roman, per doz. bunches	6 0- 8 0	— Perle, per doz.	1 0- 2 0
Lilium longiflorum, per dozen	6 0- 9 0	— Safrano, p. doz.	1 6- 2 0
Lily of the Valley, dozen sprays	1 6- 2 6	Smilax, per bunch	2 0- 3 0
Marguerites, 12 bun.	6 0- 8 0	Tuberoses, 12 blms.	1 0- 1 6
Maidenhair Fern, per doz. bunches	6 0- 9 0	Violets, per dozen bunches	1 0- 2 0
		— Parma, bunch	4 6- 6 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		*s. d. s. d.*
Apples, King, per bushel	4 6- 6 0	Cobnuts, per 100 lb.	40 0-45 0
— Golden Knobs, bushel	3 0- 5 0	Cranberries, American, box	12 0 —
— Wellingtons, bushel	5 0- 8 0	— Russian kegs	1 9 —
— Sourings, per bushel	3 0- 5 0	Custard-Apples, doz.	8 0-12 0
— Blenheims, per bushel	3 0- 6 0	Grapes, English, Alicante, lb.	1 0- 1 6
— Large cookers, per bushel	3 0- 4 0	— Gros Colmar	1 3- 1 9
— French, Renesette Gris, good, cases	5 0 —	— Muscats, per lb.	2 0- 3 0
— Nova Scotia, Baldwins, Greenings, Gold Russets, Kings, and other sorts, per barrel	16 0-25 0	— Almeira, doz. lb.	6 0 —
— Californian, New Towns, Fancy Reds, &c., per case	7 6-10 0	Lemons, per case	7 6-15 0
— Canadians, various sorts, Baldwin, Ben Davis, Greenings, &c., per barrel	18 0-25 0	— Messina, 360	10 6 —
Bananas, bunch	6 0- 9 0	Lychees, Chinese, packet, 1 lb.	1 6 —
Chestnuts, various, per bag	4 6-12 0	Oranges, Jaffa, cases	9 6-11 0
		— Denia, case, 240	4 6 —
		— Mandarin, pkt. of 10 boxes	5 0 —
		— Valencia	7 6-15 0
		— Teneriffe, case	5 0- 6 0
		— Tangierine, box of 25	0 6- 1 0
		— — box of 108	4 0 —
		Pears, Californian, Easter Beurré, case, 108	24 0 —
		— Catiilac, French, crates (according to number, &c.)	7 0-15 0
		Pines, each	2 0- 5 0
		Walnuts, kiln-dried, Naples, cwt.	34 0 —
		— — bag	7 0 —

POTATOS.

Beauties, Saxons, Giants, Up-to-Date, &c., according to sample, 60s. to 80s. per ton; Dunbar Main Crops, 90s. *Joh Bath, 32 and 34, Wellington S reet, Covent Garden,*

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		*s. d. s. d.*
Artichokes, Globe, per doz.	2 6- 3 0	Leeks, doz. bunch.	1 6- 2 0
— Jerusalem, per sieve	1 6- 2 0	Lettuce, Cabbage, per doz.	10- 1 3
Asparagus, Paris, green	3 6- 4 0	Mint, new, forced, per doz. bunch.	4 0- 5 0
— Sprue	0 6-0 10	Mushrooms, house, per lb.	0 6- 0 8
— English, per 100	6 6- 7 6	Onions, Albanians, bags	6 0 —
Beans, Dwfs., Channel Islands, lb.	1 3- 1 6	— Dutch, per bag	4 6- 5 0
— Madeira, bkt.	2 0- 3 0	— English, cwt.	5 0- 6 6
Beetroots, per dozen	0 6- 0 9	— Valencia, cases	8 6 —
— bushel	2 0 —	— picklers, in bags	2 6 —
Brussels Sprouts, per sieve	1 6- 2 6	— — in sieve	2 6 —
— per bushel	3 0- 4 0	Parsley, per dozen	1 6- 2 6
Brussels tops, bush.	1 0- 1 3	— sieve	1 0 —
Cabbage, doz.	1 0- 1 6	Parsnips, per dozen	0 6- 0 9
— Coleworts, per bushel	2 0 —	— cwt. bags	3 0 —
— Savoys, p. doz.	1 3- 2 0	Potatos, Hebrons, Snowdrops, Up-to-Date, &c., per ton	60 0-80 0
— — per tally	6 0- 9 0	— New, Algerine Kidneys, lb.	0 2½ —
Cardoons, each	0 9- 1 0	— — Frame, lb.	0 5- 0 6
Cauliflowers, English, per dozen	1 6- 2 6	— — Teneriffe, per cwt.	18 0 —
— per tally	7 0-10 0	Radishes, Round, breakfast, per dozen bunches	1 0 —
— Italian, baskets of 18	4 6 —	Rhubarb, York, per doz. bundles	1 6-2 0
Celeriac, per dozen	2 0 —	Salad, small, punnets, per dozen	1 3 —
Carrots, washed, in bags, fine	3 0- 3 6	Scotch Kale, per bushel	2 6 —
— unwashed	2 0 —	Seakale, per dozen punnets	12 0-18 0
— Surrey, bunchs.	2 0- 2 6	Shallots, per cwt.	8 0-10 0
Celery, Red, dozen bundles	8 0-16 0	Spinach, per bushel	5 0 —
— unwashed	6 0- 9 0	— French, crates	3 6- 4 6
Chicory, per lb.	0 3- 0 4	Tomatos, English, per lb.	0 4- 0 5
Cress, doz. punnets	1 6 —	— Canary, boxes	2 0- 2 6
Cucumbers, per dozen	6 0-10 0	Turnips, Eng., per doz. bunches	2 0- 3 0
Endive, French, per dozen	2 0 —	— in bags	2 0 —
Garlic, per lb.	0 3 —	Turnip-Tops, bag	2 0- 2 6
Horseradish, New English, bundle	2 0- 2 6	Watercress, p. doz. bunches	0 3- 0 6
— — loose per doz., fine	2 0 —		
— foreign, per bundle	1 3 —		

REMARKS.—In last report Walnuts should have read cwt. (not half). On Saturday last all varieties of green vegetables were in demand, and good prices were realised. Mushrooms were easier in price. Leaves of Galax aphylla are being imported from America. The supplies of Yorkshire Rhubarb are increasing, but only the very best samples fetch 2s. per dozen.

SEEDS.

LONDON: *January* 4.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E. write that, notwithstanding the fact that to-day's seed market was poorly attended, with but little business passing thereon, an increased inquiry for Grass and Clover seeds is shortly anticipated. Meantime, stocks and prices are as previously noted, alike moderate. Rye continues scarce, and is wanted. Some new Kœnigsburg spring Tares have just arrived. The trade for bird seeds presents no fresh feature. As regards Peas, Haricots, and Lentils, the absence of severe weather naturally restricts the sale. Linseed favours sellers.

FRUIT AND VEGETABLES.

GLASGOW: *January* 4.—The following are the averages of the prices recorded since our last report:—Lemons, 1s. 6d. to 2s. per dozen; Chestnuts, 4d. per pound; Cob nuts, 4d. to 8d. do.; Prunes, 3d. to 8d. do.; Apples, per barrel, Canadian Spies, 18s. do.; Western States' Russets, 30s. do.; Oranges, Jaffa, 9s. 6d. to 11s. per case; Pears, 12s. to 18s. per cwt.; Tomatos, Guernsey, 4d. to 8d. per lb.; do., Scotch, 5d. do.; Grapes, home, 1s. to 4s. do.; do., foreign, 6d. do.; Cabbages, 9d. to 1s. 2d. per dozen; Cauliflowers, 1s. 6d. to 2s. 6d. do.; Parsnips, 3s. 6d. per cwt.; Herbs, 1d. to 2d. per bunch; Leeks, 1s. 6d. to 2s. 6d. per dozen bunches; Mint, green, 6d. to 9d. per bunch; Onions, 5s. 6d. per cwt.; ditto, 6s. to 7s. per case; Parsley, 1s. to 1s. 6d. per stone; Potatos, 5d. to 6d. do.; Carrots, 2s. to 3s. 6d. per cwt.; Artichokes, 1s. 6d. per stone; Cucumbers, 9d. to 1s. each; Lettuce, round, 1s. 3d. per dozen; Horseradish, 3s. per bundle; Mushrooms, 10d. to 1s. 3d. per lb.; Beetroots, 6d. to 7d. per dozen; Brussels Sprouts, 1s. to 1s. 6d. per stone; Turnips, 1s. to 1s. 2d. per bag; do., large white, 3s. per dozen; Savoys, 9d. to 1s. 6d. per dozen; late Cabbages, 9d. to 1s. per dozen.

LIVERPOOL: *January* 4.—*Wholesale Vegetable Market*:—Potatos, per cwt., Giants, 2s. to 2s. 4d.; Main Crop, 2s. 6d. to 3s.; Bruce, 2s. 2d. to 2s. 8d.; Turnips, 6d. to 10d. per dozen bunches; do. Swedes, 1s. 2d. to 1s. 4d. per cwt.; Carrots, 2s. 3d. to 3s. 3d. do.; Parsley, 6d. to 10d. per dozen bunches; Onions, English, 5s. to 6s. per cwt.; do., foreign, 4s. 3d. to 4s. 9d. do.; Cauliflowers, 1s. 3d. to 2s. 6d. per dozen; Cabbages, 8d. to 10d. do.; Celery, 8d. to 1s. 6d. do. *St. John's*:—Potatos, 10d. to 1s. per peck; Grapes, home, 2s. 6d. per lb.; do., foreign, 6d. to 8d. do.; Pines, English, 5s. to 6s. each; Cucumbers, 1s. 6d. each; Mushrooms, 1s. per lb., and basket. *Birkenhead*:—Potatos, 8d. to 10d. per peck; Filberts, 10d. per lb.; Grapes, home, 1s. 6d. to 3s. 6d. do.; do., foreign, 6d. to 10d. do.; Pines, English, 5s. to 10s. 6d. each; do., foreign, 3s. to 5s. do.; Mushrooms, 1s. to 1s. 6d. per lb.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending December 31, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1897.	1898.	Difference.
	s. d.	s. d.	s. d.
Wheat	34 6	26 11	− 7 7
Barley	27 3	28 4	+ 1 7
Oats	17 1	17 0	− 0 1

GARDENING APPOINTMENTS.

Mr. J. Macfarlane, for the past six years Gardener at Stapleton Park, Pontefract, as Gardener to J. S. Calverley, Esq., Oulton Hall, Leeds.

Mr. Thos. Pilcher, until recently Head Gardener at Holborough Court, Snodland, Kent, as Head Gardener to F. D. Brockman, Esq., J.P., of Beachborough Park, Hythe, Kent.

Mr. G. Frost, as Gardener to the Earl of Zetland, Upleatham, Marske-by-the Sea, Yorkshire.

Mr. W. C. Lewis, Fruit Foreman, Mentmore, Leighton Buzzard, as Gardener to D. G. Landale, Esq., Limpsfield Grange, Limpsfield, Surrey.

Mr. James Masterson, late Gardener to James Smithwick, Esq., Kilcreen House, Kilkenny, as Gardener to James Cassidy, Esq., J.P., Togher House, Monasterevan.

Mr. Charles Masson, late Gardener and Steward to Colonel Cooper, D.L., Dunboden, Mullingar, as Head Gardener to E. J. Beaumont Nesbitt, Esq., D.L., Tubberdaly, Edenderry, King's co.

Mr. G. H. Clack, previously Head Gardener at Beechen Cliff House, Bath, as Head Gardener to B. Winthrope, Esq., Barton Court, Hungerford, Berks.

Mr. James Prentice, formerly Foreman at Gifford House, Roehampton, as Head Gardener to J. D. Charrington, Esq., at same place.

Mr. William Milne, from Drumlanrig Gardens, Thornhill, N.B., as Head Gardener to S. B. Almond, Esq., Standish Hall, Wigan, Lancashire.

Mr. T. Turton, for twenty years Head Gardener at Maiden Erlegh, Reading, as Head Gardener to J. K. D. Wingfield Digby, Esq., M.P., Sherborne Castle, Sherborne, Dorset.

Mr. E. Bryant, for the past six years Head Gardener at The Manor House, Tarrant Gunville, Blandford, as Head Gardener to Colonel Parry Otheden, Turnworth, Blandford.

Mr. Thomas Edington has been engaged by Lord Ducie as Head Gardener, in succession to Thomas Shingles, deceased.

CATALOGUES RECEIVED.

H. Kenkel, Darmstadt—Plants, including Orchids.

Fisher, Son, & Sibray, Ltd., Royal Nurseries, Handsworth, Sheffield—Seeds, &c.

David W. Thomson, 24, Frederick Street, Edinburgh—Seeds, &c.

Vilmorin-Andrieux & Co., 4, Quai de la Mégisserie, Paris—Wholesale List of Novelties in Flowering Plants, Vegetables, and Grains.

Wm. Paul & Son, Waltham Cross, Herts—Seeds, &c.

H. Cannell & Sons, Swanley, Kent—Chrysanthemums.

Dicksons & Co., 1, Waterloo Place, Edinburgh—Seeds, &c.

Dobbie & Co., Rothesay, N.B.—Seeds, &c.

T. Methven & Sons, 15, Princess Street, and Leith Walk, Edinburgh—Seeds, &c.

Edmondson Brothers, Dublin—Seeds, &c.

Carter, Page & Co., 52 and 53, London Wall, E.C.—Seeds, Plants, Roses, Trees, &c.

F. Urquhart & Co., 11, Union Street, Inverness—Seeds, &c.

Chas. Turner, The Royal Nurseries, Slough—Seeds.

W. Bull, New and Rare Plant Establishment, King's Road, Chelsea—Seeds.

Robt. Veitch & Son, 54, High Street, Exeter—Seeds.

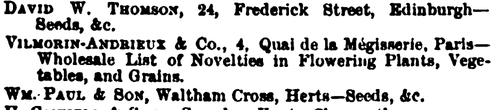
Kelway & Son, Langport, Somerset—Wholesale List of Seeds.

Wm. Clibran & Son, 10 and 12, Market Street, Manchester—Seeds.

E. P. Dixon & Son, Hull—Seeds, &c.

Armitage Bros., Ltd., High Street, Nottingham, Seeds, &c.

Fredk. Gee, Riverford House, Biggleswade, Bedfordshire—Seeds, &c.



Agricultural Rating Act: *Market Gardener* It can be obtained for a few pence of Messrs. Eyre & Spottiswoode, East Harding St., London, E.C.

Bedding Pelargoniums: *Novice.* Where many plants are required, boxes measuring 12 × 36 × 3 inches are used, instead of potting each plant separately, the plants being set in these boxes at 4 inches apart. Scarcely any more drainage is required than some rough fibry soil, half-decayed leaves, or the like, the bottom being made of thick laths or with augur holes half-an-inch in diameter. These boxes may be used for autumn and early spring-struck cuttings; late spring-struck cuttings are better for being potted in 60's. If the plants are to bloom early, one stopping in February or early in March will suffice. If you wish to increase your stock of plants, put the boxes, or some of them, in mild heat—58° to 60° by night—in late January, and take the tops 3 inches in length in about 20 days afterwards. If no increase is looked for, keep the boxes in the greenhouse till April and then place them in cold frames.

Begonia Gloire de Lorraine, &c.: *J. R.* There have been numerous notices of this plant in the *Gardeners' Chronicle*. The plant is very commonly grown now in gardens and nurseries. The parents of the variety are B. socotrana and B. Dregei. See "New Plants," in *Gard. Chron.*, January 21, 1893, p. 68. This was the first notice.

Books: *S. P.* Babington's *British Botany* is published by J. van Voorst, Paternoster Row. We believe a new edition is in preparation. Dr. Vines has lately issued an Elementary Text-book, which is published by Swan, Sonnenschein & Co.—"*Shrubs*: *A. D. Webster. Hardy Ornamental Flowering Trees and Shrubs*, published at 1, Clements' Inn, Strand, W.C.—*G. H. Observations on the Cultivation of Roses in Pots*, by W. Paul. Published by Simpkin, Marshall, Hamilton, Kent & Co., 23, Paternoster Row. —*The Rosarian's Year-Book for* 1898, published by Bemrose & Sons, Ltd., 23, Old Bailey, will afford the report of the National Rose Society's Conference, &c.

Chrysanthemums for Exhibition: *W. C.* Any such list must be more or less an arbitrary one. It is impossible to make up your mind in January what varieties you will exhibit in November, as certain sorts do not succeed in certain seasons, and the cultivator must necessarily possess himself of a greater number of varieties than he intends to exhibit. On p. 410 of our last volume, a list of the most popular varieties at the leading shows in November last was given by Mr. C. H. Payne. With such a collection as that, and by adding a few of the recent novelties, you will be as well prepared as possible. Of the new ones, General Paquie, Reginald Godfrey, H. J. Jones, Mrs. White Popham, R. Hooper Pearson, Chatsworth, Lord Ludlow, John Pockett, Mrs. Barkley, W. Carsham, Swanley Giant, Hanwell Glory, M. Fatzer, Madeline Davis, Mr. F. Carrington, Kathleen Rogers, and Miss Nellie Pockett, are all good ones.

"Creeper" with Scale.—The shrub is probably a Ceanothus. The X L was probably used too strong; it has killed the leaves, but not in every case destroyed the insect, which is not surprising, as it lives beneath a shield-like scale, which prevents the vapour from reaching the insect. Cut away all the lateral shoots, and burn them. Then dress the stem as you would do for a Vine, or if the scale is not very abundant, touch each one with a camel's-hair pencil dipped in methylated spirit.

Cyclamens: *Nemo.* The plants should be separated into their several colours, placing these in different houses. If crossing is practised it should be carefully done artificially with a camel-hair pencil, as a means of carrying the pollen from the anthers of the male flower to the intended seed-bearer. Not more than half-a-dozen seed-vessels should be allowed to remain on any one plant, and these should be allowed to droop and bury themselves naturally in the soil. The plants should not be unduly weakened by carrying a great number of blooms, but reduce the number. The setting of the flowers may begin when the days are a little longer—say, in February.

Fruit-trees Trained Against a Wooden Fence Painted Green: *C. N. M.* We have never heard of any ill-effects from doing this, and do not suppose that any would arise. If the ordinary green oil-paints are deemed injurious why not use Carson's anti-corrosion paint?

Grape-Vine Lifted Two Years Ago: *Novice.* The Vine probably suffered from the heavy crop that it carried the next year, and took its revenge by bearing scantily. Crop lightly this year, and its productiveness will be restored in a season or two. Do not be lavish with the use of solid manure on the Vine-border. It will do no good unless the fertilising properties in it are carried to the roots by means of heavy waterings whilst in active growth. If the loam is heavy do not employ a mulch of manure, but apply manure-water of good strength three times during the summer, first applying pure water. Dressings of lime, potash, and basic slag are useful to Vines at the rate of ¼ lb. per square yard. The retention of the straw round the stem did the Vine no harm.

Lily of the Valley: *Valley.* A bud having once flowered, does not do so again. It must be three years old to produce a flower, or, strictly speaking, its flowering year is the third of its existence. A clump of Lily of the Valley will contain buds one, two, and three years old. Trade growers separate these into three lots, the three-year-old, the plumpest and largest, being reserved for flowering indoors or out-of-doors, and the others for planting to grow on to the flowering age. In an undisturbed Lily-bed, buds of many different ages are found, none of them, however, producing flowers but those that are three years old. It is the unavoidable crowding of an old bed with much flowerless growth that leads to small flower-spikes and minute flowers.

Names of Fruit: *J. F. D.* Pear, Vicar of Winkfield.—*Dalyril.* Pale] Apple, Winter] Hawthornden; coloured, Beaspool.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—P. E. H.* Habrothamnus elegans.—*T. T. C.* 1, Rhapis flabelliformis; 2, Cupressus Lawsoniana; 3, Retinospora pisifera, of gardens; 4, Adiantum decorum; 5, Adiantum formosum; 6, Pteris cretica variety; 7, Pteris cretica albo-lineata.—*A. T. C. J.* Probably a young frond of Adiantum pubescens.

Peristeria elata: *W. J. Kaye.* The withering and browning of the leaves is due to your having dried off the plant, which is an injurious procedure at the season of rest. The plant should be at such time afforded less water, but not be dried off, and less heat should be given.

Red-Spider on Carnations: *J. R.* This pest can be got rid of by using Richards' XL-All special preparation. Sponging the leaves with soapy water is of great use, and effects the same purpose.

Substitute for Glass: *Paper.* If "Duroline" be meant, this substance was being sold in 1894 by the New Wirewove Roofing Co., 75a, Queen Victoria Street, E.C. It is mentioned in the *Gardeners' Chronicle*, 1st vol. for 1894, p. 143.

Sulphuring Vines: *H. R. G.* Mention is made of the practice having been safely performed in the *Gardeners' Chronicle* for January 1 and 8 last year, pp. 13 and 28. We do not know of any correct formula, and would advise great caution in the use of burning sulphur, even before the buds of the Vine move in the least degree.

Two-flowered Cypripedium insigne: *E. W.* Unusual, but not unprecedented.

Vines: *Anxious One.* It will be quite safe to prune forthwith, cutting back the laterals to the best and plumpest bud on each, and keeping the vinery as cool as possible till the time for starting the Vines has arrived. What cleaning and dressing are needed should be carried out directly after the pruning is finished. Another year you should not cut back the laterals to four joints before the danger from any of the buds pushing is past, say the second week in October. The gain in strength is quite problematical, and in the case of black Grapes left hanging it results in loss of colour owing to the removal of the shade-giving leaves, although white ones may gain a higher tint.

Communications Received.—R. Sowerby, Reading.—E. C.—E. M.—W. G. S.—J. O'B.—G. N.—G. H.—A. F. B.—M. Roze.—A. M., Paris.—S. A,—Hurst and Sons.—Baffled. A. H.—W. S. H.—F. M.—X.

Specimens and Photographs Received with Thanks.—G. H. G.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation, *and that it is preserved for reference in all the principal Libraries.*

THE
Gardeners' Chronicle
SATURDAY, JANUARY 14, 1899.

DISEASES OF THE VINE.

THE Grape-Vine may be said to form the principal feature in hundreds of glasshouses in this country. A proprietor with only a small portion of land under glass likes to see a good part of it in the form of a vinery, and expects his gardener to take the best crop possible out of this department. The gardener knows, however, that it is this very crop which gives him a considerable amount of the worry attendant on his post. Nor is the Vine specialist, who gives almost all his time to Grape-growing, by any means free from cares due to the uncertain nature of the Vine itself. One hears our climate or the indoor mode of cultivation adopted in this country blamed, yet it is not so easy to explain away our troubles thus, for if we turn to France, with the greatest area of outdoor vineyards in the world, we find there, troubles quite as serious and not unlike our own; and that, too, in a land where Grape-growing has passed down from father to son for many generations. The reasons for failure are deeper then than ignorance of the gardener, or faults of our indoor cultivation; they belong to the Vine itself, and arise because we do not yet clearly understand the plant. Trouble has, however, brought study and investigation to bear on the Vine, and consideration of some of these may be profitable.

Diseases of the Vine may be conveniently classed into:—

(1) Those directly traceable to the action of parasitic fungi.

(2) Those directly traceable to the action of injurious insects.

(3) Those for which neither fungi nor insects offer a sufficient explanation.

The first and second class of diseases we propose on this occasion to pass over, because they and the remedies likely to check them may be found described in standard works on Vine-culture, and the more important have been dealt with in the back volumes of the *Gardeners' Chronicle*, either as replies to queries, or in special articles. Numerous papers of M. J. Berkeley, M. C. Cooke, Worthington G. Smith, and G. Massee, on the fungus diseases may be mentioned as examples.

The unexplained diseases of the Vine are important enough to merit special notice, as they have been the subject of many investigations. As a general conclusion of the perusal of some of the more important results obtained, we are led to regard most of the unexplained diseases as "physiological," that is, they are due to defects in cultivation, to adverse climatic or other conditions, and to the use of unsuitable varieties of the Vine. Fungi or insects may appear along with diseases of this kind, but they come later and only because the plants are already weakly. One might even go further, and say that most of the fungus-diseases of the Vine are really started by defects in cultivation; the Vines are weakened, the fungi come and complete the mischief. The Vine, as it has to be cultivated in this country, is open in many ways to defective cultivation. Its roots are generally in a border exposed to the changes of climate out-of-doors; its shoots are under glass; while the methods employed to produce a large supply of fruit of high quality may easily result in conditions favourable to the development of disease.

SHANKING.

"Shanking" is a trouble which accompanies Grape-growing all over the world. The Grapes as they approach maturity fall off the bunch, breaking away where the stalk joins the fruit; or they may simply shrivel up and remain attached. The Grapes to go first are those towards the lower end of a bunch, or those on the shoulders. The number may vary from one to many, and the trouble may be apparent all over the Vine or only on parts of it. The foliage is at the same time more or less affected; generally the leaves turn brown and curl in places, or all over. Insects or fungi have never been proved to be the real cause of the trouble, the chief reason is to be sought in the condition of the Vine itself. No doubt, the disease is not always due to the same cause. Over-cropping frequently leads to "shanking," so, also, does too early ripening of the wood. Both of these conditions result in a drain on the food-supplies which the plant has to provide, and will lead to starvation of maturing fruit. The atmosphere inside the house requires careful attention; excessive moisture and heat produce conditions favourable to "shanking" if they cause undue forcing of the Vines; on the other hand, any check due to sudden dryness or cooling, will be first seen in the fruit-bunches.

From what we can learn, the soil itself has no direct effect, but a weak root-system due to defects in the air, heat, texture, or moisture of the soil, will not be in a condition to supply the necessary water and food to a fruiting Vine. Excess of nitrogenous substances in the Vine due to over manuring or to over-cultivation of a rich outside border, easily aggravate "shanking." It is said by good authorities that "shanking" occurs when the Vine is deficient in potash, and they recommend this to be supplied in some form as a manure to the soil. Dropping of the Grapes is also a common result of any disease of the foliage, stems, or roots of the Vine.

A disease on out-door Vines, recently described by French investigators under the name "maladie pectique," seems to us very like a form of "shanking." The leaves in the lower parts of the Vines show discoloured patches, which become wine-red in dark-fruited varieties, or yellowish in white-fruited. This is followed by withering, curling, and drying-up of the leaves; as this goes on, the blade breaks away at the top of the leaf-stalk. Flowers and young fruit behave in the same way, shrivel, and drop from their stalk. The disease was never seen to cause total loss of a Vine, as it never seemed to spread beyond the lower branches. No parasites of any kind could be found. The conditions which lead to the disease are sudden changes of climate affecting the soil. The soils most liable to it are light, and of a pebbly or slatey nature. The vineyards, where it showed most, were subjected to severe drought in 1893, followed early in 1894 by continual rain and a marked fall in temperature of both air and soil. These facts support the view that "shanking" on our indoor Vines is not caused by either fungus or insect, but by conditions arising from soil or climate.

BLANCHING.

"Chlorose," or "blanching," is a disease which has caused much trouble in the south of France. The Vine-leaves lose their deep green shade, then become yellow or completely blanched. The loss of colour generally begins near the margin of the leaf, and spreads inwards between the veins; the affected parts may or may not become withered. Young green twigs sicken like the leaves, and may dry up. The woody branches are retarded in growth, and new leaves given off remain small and blanched. As the malady almost always develops before the flowering period, both flowers and young fruit are stunted and discoloured, and probably dry up or fall off. French experience shows that chlorose is worst on very limey calcareous soils. On such soils the Vines sicken in the first year, and gradually lose their vigour; death may ensue, but frequently the Vines recover gradually each year, and the chlorose may disappear. Where the soil is less calcareous, the disease is less intense. On clay or siliceous soils, chlorose only appears in some cold wet spring, when yellow patches may appear on the leaves, but growth is hardly interrupted, and, if the weather improves, all comes well again. The primary cause of chlorose is the presence of too much carbonate of lime (limestone or chalk) in the soil, and its action is assisted by any condition of the soil which increases the amount of soluble lime. This is further assisted by want of water, light, heat, or air, which defects tend to weaken the general health of the Vines. The disease is diminished by any mode of cultivation which promotes good drainage in the soil, or which strengthens the growth of the Vine. Above all, applications of sulphate of iron (green vitriol) to the soil round the roots of the Vine do most to cure chlorose; this is the case, even though the soil naturally contains iron. As many of the great Vine-growing districts of France have a calcareous soil, chlorose is a serious disease, and, during the Phylloxera epidemic, it assisted in almost exterminating the Vine, and in ruining many a grower. During recent years, however, great progress has been made in checking both Phylloxera and chlorose. This is done by selecting Vines produced by grafting the European Vine (Vitis vinifera) on stocks of American Vines. We cannot discuss the subject fully in this paper. Briefly, however, certain varieties of Vitis vinifera grow fairly well on calcareous soils (e.g., Folle-Blanche, Pinot, Colombeau, &c.); these are grafted on stocks of the American Vitis Berlandieri, which is found wild only on calcareous soils. The Vinifera-Berlandieri hybrids have been used to re-stock hundreds of acres in France, and the Grapes produced are not inferior in quality, while the Vines are much more resistent to disease. This is an important chapter in the history of Vine cultivation, and illustrates the great value of resistent varieties or hybrids as a means of combating diseases of plants. We have urged this before, and believe that more substantial progress will be made against diseases of plants by means of hardy varieties than by any methods of spraying or sulphuring sickly plants. *Wm. G. Smith, Leeds.*

(To be continued).

ORCHID NOTES AND GLEANINGS.

STAUROPSIS LISSOCHILOIDES VAR. MASSAIANA.

SOME time ago, H. J. Ross, Esq., of Poggio Gherardo, Florence, asked for information respecting a plant which, I believe, he purchased from Messrs. Linden as Vanda Massaiana. The communication was accompanied by an artistic accurate drawing made by Mrs. Janet Ross.

The flowers represented a brightly-coloured form of Stauropsis Lissochiloides (Vanda Batemani), and the reply given was that it could only be that species. Two facts, however, remained, viz., that this variety blooms freely on small plants, and the leaves are very different in shape, as in place of the hard, straight leaves tapering gradually to the point, as in the type, these are more strap-shaped, more equal in width, generally curved, and more acutely bilobed at the apex.

Recently I had an opportunity of examining a small importation of this variety made by Messrs. Jas. Veitch & Sons, of Chelsea, and the advantages it gave of securing a plant of moderate growth, and flowers in a small state, over the large, shy-flowering old type, was apparent.

The flower-buds are of a rich vinous-purple on the outside, the same hue remaining on the reverse of the flower when open. The face of the sepals and petals is bright chrome-yellow, with ruby-red spots, some of them being ocellate, a few crimson-purple marks being found around the column; and the lip is white and claret coloured.

ODONTOGLOSSUM CRISPUM, Rosslyn var.

This grand form of typical Odontoglossum crispum is comparable to the noble O. c. Prince of Wales, which received a First-class Certificate at the Royal Horticultural Society on June 14, 1898. In actual measurement this is slightly smaller than the variety named, but when it is considered that the certificated plant was a large one, and superbly grown, and this one is only a small imported plant, matters may be equalised.

O. crispum, Rosslyn variety, measures 4 inches across, and all the segments are so broad as to fill-in the greater part of the circumference of the flower. The sepals are white, delicately tinged with rose-colour, especially on the reverse side, each having one or two purplish-red blotches. The petals, which are slightly wavy at the margin, are pure white. The large and prettily crimped lip is white, with a clear yellow disc, and several large confluent dark chestnut-red blotches in the middle. The plant flowered with that enthusiastic lover of the genus Odontoglossum, H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood). *James O'Brien.*

THE RAINFALL OF 1898.

It is generally acknowledged that the rainfall for the year 1898 is below, and in some districts of the country very much below, the average. So great has been the deficiency of rain at Rothamsted, Hertfordshire, that in Sir John Lawes' experimental Wheat-field, which is pipe-drained, to enable the observer to determine the loss of nitrates in the drainage, no water passed from the early part of January until the beginning of December. This is the second time only of such an occurrence during a period of more than forty years.

The following table shows the rainfall for the past year at Rothamsted, Hertfordshire, according to the measurements taken from Sir John Lawes' gauge, which in size is 6 feet by 7 feet 3 inches, equal to one-thousandth of an acre in area. It stands 2 feet above the ground, and is 420 feet above the sea-level. The average rainfall from the same gauge is also given for forty years, with the difference of 1898 above or below the average.

Rainfall at Rothamsted for each Month of the Year 1898, and the Total Yearly Rainfall.

Month.	Rainfall, 1898.	Average Rainfall of Forty Years.	1898. Above or Below the Average.*
	Inches.	Inches.	Inches.
January	0·795	2·453	—1·658
February	1·098	1·743	—0·645
March	1·060	1·730	—0·670
April	1·443	1·972	—0·529
May	2·892	2·327	+0·565
June	1·607	2·414	—0·807
July	1·451	2·731	—1·280
August	1·207	2·599	—1·392
September	0·597	2·551	—1·954
October	2·889	3·193	—0·304
November	2·440	2·770	—0·330
December	3·013	2·170	+0·843
Yearly total ...	20·492	28·653	—8·161

* The sign (—) signifies below the average, and the sign (+) above the average.

The above data show that the yearly total of rain for 1898 was 20·492 inches, against an average for forty years of 28·653 inches, giving a deficiency in the twelve months of 8·161 inches. There were but two months in the year, namely, May and December, when the rainfall exceeded the average, there being ten months of deficiency. This is the smallest yearly rainfall measured at Rothamsted since 1864, when 18½ inches only fell; the next lowest was 1854, when 19·4 inches were recorded, and the year nearest to that of 1898 was 1858, when slightly over 20 inches fell.

In order to understand what this deficiency of rain means to vegetation, it may be stated that the 8·161 inches represents 824¼ tons of water on each acre of land, equal to 184,634 gallons, and as we began the year 1898 with a deficiency from 1897 of 1·579 inch, equal to 159½ tons, or 35,723 gallons of water, it means that at Rothamsted the land at the present time requires 220,357 gallons of water on each acre to bring the amount up to the normal average; consequently, our well-springs and other supplies of water may show a falling off which can easily be accounted for.

The amount of snow which fell at Rothamsted in 1898 was most exceptionally small: about 2 inches were recorded in February, 6 inches in March, and 8 inches in November, making a total depth of about 16 inehes for the year. *J. J. Willis, Harpenden.*

THE ROCK GARDEN.

GERANIUM SANGUINEUM ALBUM.

Within the last two or three years, there has been offered by a nurseryman a plant under the above name. It appears to correspond in every way with one received by the writer under a similar name from Mr. W. D. Robinson-Douglas, of Orchardton, Castle Douglas, N.B. Probably they are from the same stock. Mr. Robinson-Douglas found this Geranium on the coast of the Solway, near Auchencairn, in Kirkcudbrightshire. Although named as a variety of Geranium sanguineum, it appears to the writer that it is not that species, but a hybrid between G. sanguineum and another, which is, in all likelihood, G. pratense. The latter, like G. sanguineum, is plentiful on the sandy coasts of the Solway Firth. It is, it may be admitted, not improbable that the Bloody Crane's-bill may produce a white variety, but the plant under notice differs considerably from the type, and also from G. s. lancastriense, the Walney Island variety of the species. The habit of the plant is different, it being larger and less compact. The leaves are also more divided, and the flowers, besides being larger, are more cup-shaped. After growing the type and the Walney Island Crane's-bill under the same conditions as the so-called G. s. album, the writer submits, with considerable confidence, that the last-named is a hybrid between G. sanguineum and G. pratense.

As a garden plant, it is of much value. It grows very freely. It has, indeed, a tendency to grow a little too quickly. Its greater laxness of growth is, perhaps, a failing; but the way in which the flowers are poised above the leaves, like large white butterflies, renders a good clump very attractive. The flowers are a trifle flimsy in texture, but this adds to the lightness of their appearance. One prefers this Geranium on rockwork because of the opportunity afforded of checking gross growth, but it can be grown in the border as well.

FRITILLARIA MELEAGRIS, FLORE-PLENO.

Properly speaking, the Snake's Head Fritillary is a meadow-loving plant, but it grows well on rockwork not too dry, and its nodding flowers are seen to better advantage than when lower down. Although known to Parkinson, the double variety of Fritillaria Meleagris is not very generally known, and it is but rarely that we see it in gardens. It is grown at Kew, and one sees it occasionally offered at a fairly high price in catalogues. It is figured in Wooster's *Alpine Plants*, second series, plate xxx. The colouring is, however, too deep, and, singularly enough, the author makes no reference to its being the double form which he shows. The doubling, so far as the writer knows, is the only instance of the kind among the Fritillarias, although among the Liliaceæ, to which order the Fritillarias belong, several of the Lilies have flowers showing doubling. F. Meleagris, flore-pleno, is more curious than beautiful, but those who have a liking for out-of-the-way plants will appreciate its singularity.

POTENTILLA ALCHEMILLOIDES.

Few of our rock-garden flowers are such free-bloomers as this Cinquefoil. There are not many months in the year in which it does not give a few blooms. This winter a plant on a rather dry rockery in the writer's garden produced a few flowers from August until after New Year's Day. The flowers, as may be expected, have not looked happy, but the fact of their being in view may emphasise the remark as to the floriferousness of the Alchemilla-leaved Cinquefoil.

The hardiness of P. alchemilloides is unquestionable in the writer's garden. It is at its best in June here; then, after a month or so of rest, in July, it begins to flower again. The flowers are pure white, and the leaves in shape and in general appearance show how appropriately the plant has been called "Alchemilla-like," from their resemblance to those of the Alpine Lady's Mantle. It is easily propagated by division. It is a native of the Pyrenees, and a plant which can be confidently recommended to the grower of alpine flowers. *S. Arnott, Carsethorn, by Dumfries, N.B.*

ROME.

(Continued from p. 2.)

The Eucalyptus in Britain.—Before bringing this paper to a close, it seems to me pertinent to enquire—is there any future for Eucalypti in England at all, and will they do good there? I have known persons who would emulate the credulity of the monks in the virtues which they attribute to these strange Australian trees. A broken Eucalyptus-bough or a few leaves were in their opinion sure to be a defence against influenza and other things—but all this is for the most part beside the mark. In England, as elsewhere, they might be very serviceable for drainage purposes if only they would live, but that seems problematical in the highest degree, and for nothing else is it worth while to take much trouble about them. In your impression of December 3, I remember reading the following passage: "Eucalyptus Globulus.—I quite agree with 'J. H. D.' in his remarks as to the rarity or difficulty of growing this plant; here, we have plants 16 or 18 feet high that have withstood five winters without the slightest protection, &c. In my opinion the principal cause of failure to grow them is planting them too soon, &c." The writer, who is evidently alive to the difficulty that surrounds the whole matter, is full of hope that it may be somehow overcome. I am sure, I do not wish to daunt him in any degree. but with regard to E. Globulus I am persuaded that it has not a constitution which is sufficiently hardy for England. It is a great favourite wherever it gets on well because it makes a great show so quickly, and my friend the Trappist monk calls it A1, because it gives him no trouble at all; but that is a different thing from the way in which Cavaliere Palice speaks about the same matter. He does not say that Eucalyptus Globulus can be trusted in all places and positions, but he maintains exactly the reverse, and he puts E. resinifera at the head of the whole of them, because it is more reliable than the rest. And this, so far as E. Globulus is concerned, I have seen over and over again in the Isle of Wight. It goes on well, say, for seven or eight years or more, and then a more than usually hard frost comes, and every tree is destroyed.

I remember twenty or twenty-five years ago receiving a letter from a friend who had a fine place at Westridge, near Ryde, and his asking me to go to him at once. He certainly was not addicted to botany or to the cultivation of trees and plants at all, but, somehow, E. Globulus had found its way into his garden, and had attained to a great size; he was very proud of his tree, but he could not make out the buds, and one spring very unexpectedly, and very suddenly, so far as the owner was concerned, it broke out into blossom, and was a pretty sight to see. I really do not know what this gentleman imagined had taken place. The knob-like buds he had esteemed to be seed-vessels, so far as he had thought about them at all, and the difficulty in his mind was, what then had succeeded them? and he was very slow to believe that his Eucalyptus was blossoming. But that tree gave rise to many false hopes in the Isle of Wight. If E. Globulus could behave like this, and grow so tall, and blossom so luxuriantly, what more could be required? It would certainly take to the Isle of Wight, and the Isle of Wight might have a new possession of great value about which no doubt need be entertained. But what really took place? E. Globulus was planted in fairly large quantity in and about Ryde, and everything went on swimmingly for a series of years. Near Trinity Church in Ryde there were some very large specimens indeed, there were one or two in St. John's Park, the same (I think) in the grounds of Isle of Wight College, certainly one or two in my own garden, and nobody dreamt of any ill coming to them; all boded so well. But the frost of 1881 made short work of the whole lot, and for some time there was not a Eucalyptus in the place that was worth speaking of. Now they are coming up again in some plantations and gardens, and they look very promising, but the promise will only last till the mercury in the thermometer goes below a certain point, and the whole thing will be over. This sort of occurrence is by no means peculiar to the neighbourhood where I live. I asked a lady who is a visitor to Rome this winter, and who lives at Falmouth, how it fared with her about this matter, and her answer was, they get on well for five or six years, and then a hard frost comes and every Eucalyptus is killed. I have even heard of a fine tree at Bournemouth, which stood the climate there for seventeen years, and at last was cut off. They may do permanently in other places about which I know nothing at all, but the Scilly Isles give the only exception I can think of to a universal rule. [Fota, Mr. Smith-Barry's place, near Cork. Ed.]. I may, however, say that I know nothing about the west coast of Scotland, and how they fare there.

The question, therefore, about them is this. Is any one species so much more hardy and so much more slow-growing than the others as to afford solid ground for hope?

I remember myself hearing some time ago of two names of Eucalypti. I think they were E. Gunni, E. coccifera and another, and these were said to promise quite well for the future in point of hardiness, but I do not know how the promise was fulfilled—it can do no harm if a third one be added to the list—it may prove a failure, like so many others; but E. resinifera has a very good character here, which should not be overlooked

I would only just add, that I have brought a good supply of seed of E. resinifera from the Trappist Monastery, and I shall not myself want a tithe of it. I will readily send some of it to any one who applies for it to me on my return home to St. John's, Ryde, which will be, so far as I can tell at present, in the month of April next. *H. Ewbank* (*Rev.*), *Rome, Christmas Eve*, 1898. [E. resinifera was figured in our columns, with a descriptive article from the late Dr. George Bennett. See *Gardeners' Chronicle*, August 3, 1872, p. 104. E. coccifera, at Powderham Castle, Devon, has often been figured in our columns. See February 7, 1891. We should be pleased to hear the present height of that specimen. The tree at Kew which gets hurt by frost is E. Gunni. E. urnigera is the tree grown at Whittingham, East Lothian. See *Gardeners' Chronicle*, June 30, 1888. We may also refer to an article on February 7, 1891, as containing a summary of our knowledge of these plants, as grown in the open air in this country. Ed.].

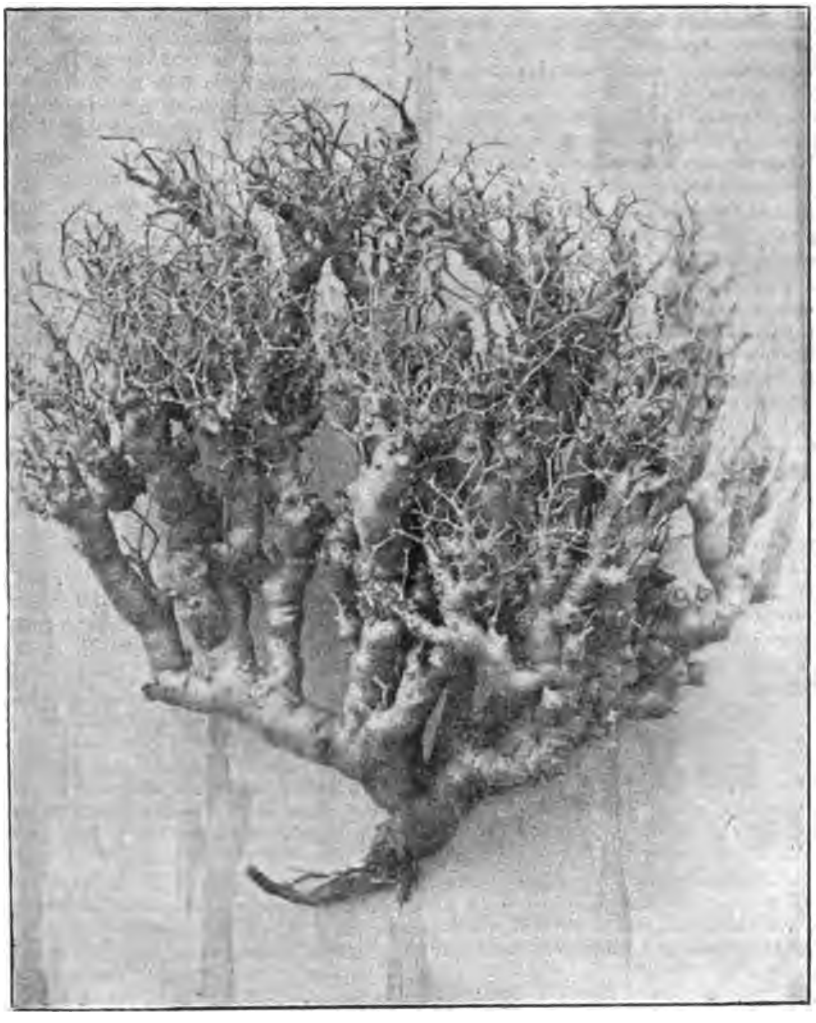


Fig. 5.—Pelargonium crithmifolium: flowers white, with a pink eye.

PELARGONIUM CRITHMIFOLIUM.

A large plant of this queer-looking Pelargonium (see fig. 5) has lately been added to the Kew collection by Professor Macowan, of Cape Town, who obtained it and numerous other rare and interesting succulents during a short stay in the Karoo district, north-west of Cape Town. Although leafless and well dried, the plant weighs 15 lb., and the thickest of its gouty-looking, succulent stems are nearly 2 inches in diameter. It is remarkable also in being enclosed, as it were, in a network of sharp spines, which are formed by the hardening of the persistent panicles, as in the case of Cotyledon reticulata, from the same region, of which a figure was published in the *Gardeners' Chronicle*, vol. xxi., p. 282. There is a figure of the Pelargonium in Sweet's *Geraniaceæ*, iv., 354, prepared in 1827 from a plant cultivated by Sir R. C. Hoare, Bart., at Stourhead, near Frome. It is there represented as having leaves and flowers like those of P. carnosum, an allied species, well known in botanical collections to-day. The leaves are irregularly bipinnate, and the flowers an inch across, white, with a pink eye.

Burchell mentions it in his *Travels*, vol. i., 225, under the name of P. munitum. He says: "We removed to the Yoke River . . . not a single drop of water could anywhere be found, even by digging. . . . In the interim I took a botanical ramble, and added forty-eight plants to my collection. Amongst them was a succulent species of Pelargonium, so defended by the old panicles, grown to hard woody thorns, that no animal could browse upon it. In this arid country, where every juicy vegetable would soon be eaten up by the wild animals, the Great Creating Power, with all provident wisdom; has given to such plants either an acrid or a poisonous juice, or sharp thorns to preserve the species from annihilation in those regions where for good and wise purposes they have been placed."

The photograph from which the illustration was made was taken by Mr. A. E. Griessen. *W. W.*

NOVELTIES OF 1898.

(*Continued from p. 2.*)

Messrs. Jas. Veitch & Sons, Chelsea, take the lead as producers of good Orchids. Not only has Mr. John Seden been able to raise and flower for them many fine novelties, especially in Cattleyas, Lælias, and Lælio-Cattleyas, but by reproducing known crosses, using the finest procurable varieties for crossing, placed several well-known things on quite a new footing. Instances of this kind may be noticed in Lælio-Cattleya × Wellsiana var. Langleyensis, L.-C. × Eudora splendens, L.-C. × Canhamiana superba, L.-C. × callistoglossa ignescens, L.-C. Dominiana var. Langleyensis, and Dendrobium × Aspasia Langleyensis, all of which, in the mere recent productions, have been so far superior to the originals as to secure for them awards at the hands of the Orchid Committee of the Royal Horticultural Society.

Other fine novelties certificated to Messrs. Veitch in 1898 are Lælio-Cattleya × Ingrami gigantea, a very remarkable flower, of great size, fine substance, and rich colour; L.-C. × Thorntoni (C. Gaskelliana × L. Digbyana), a fine companion for L.-C. Digbyano-Trianæi, and L.-C. × Digbyano-Mossiæ; L.-C. × Hippolyta aurantiaca, wholly of two shades of orange colour; Lælia × Digbyano-purpurata, a fine flower, though at present it has not developed the fringe, which is the great attraction of L. Digbyana crosses; L. × splendens, Cattleya × Miranda, C. × Adele, C. × Ella, C. × intertexta, and other Cattleyas, all good of their kind; Disa × Diores var. Clio, a fine form of a showy and variable batch; the singular Epi-Cattleya × radiata-Bowringiana, the curious illustration of colour-suppression Epidendrum × elegantulum var. leucochilum, the pretty Phalænopsis × Stuartiano-Manni, Masdevallia × Imogene, Cattleya Schroderæ amabilis, &c.

Messrs. HUGH LOW & Co., Bush Hill Park, Enfield, have contributed well and continually to the Orchid displays shown throughout the year 1898, and many of their fine new plants have been Certificated. Among their finest productions were Cattleya Mendeli, Oakes Ames, and C. M. Mrs. E. V. Low, two superb forms; Cypripedium × I'Ansoni and C. × Mrs. Reginald Young, with which they performed the unusual feat for Cypripediums by taking two First-class Certificates on the same day. C. × F. S. Roberts, a pretty thing of the Tautzianum class; and C. × Olivia, a singular C. tonsum hybrid; Phalænopsis × Schroderæ, an improvement on P. × intermedia Portei; Odontoglossum nebulosum pardinum splendens, O. crispum Prince of Wales, one of the grandest of the typical forms; O. c. Memoria, W. E. Gladstone, and O. C. Dieudonné, both fine spotted forms; Lælio-Cattleya × Schilleriana, flowers with very richly-coloured lip; Dendrobium Dalhousieanum Salmoneum and Bulbophyllum Claptonense, the last-named a very handsomely coloured form of the B. Lobbi section.

Messrs. J. CHARLESWORTH & Co., at the last Temple Show made a fair display chiefly of novelties raised or acquired, and shown for the first time. Of the best were Cattleya × Fernand Denis (Acklandiæ × Warscewiczii); C. × Breanteana (Loddigesii × superba); Lælio-Cattleya × radiata (L. purpurata × C. dolosa); the singular Lælia × cinnabrosa (cinnabarina × tenebrosa); the pretty yellow L.-C. × intermedio-flava "Golden Queen"; Odontoglossum crispum Jeanette, O. nebulosum punctatissimum, O. Halli, Charlesworth's variety, &c. Messrs. Charlesworth also showed a fine batch of varieties of Phaius × Norman, three of the most distinct of which were awarded certificates; the singular Epi-Lælia × Charlesworthi, and the pretty Sophro-Cattleya × Cleopatra.

Messrs. F. SANDER & Co. have mainly devoted their energies to the re-introduction of desirable species, such as Dendrobium atro-violaceum, D. Johnsoniæ, &c.; and in that direction the introduction by them of the famous Dendrobium spectabile (figured as Latourei spectabile), is worthy of congratulation. Many hybrid Cypripediums also have been flowered by them, and, among other noteworthy subjects, the distinct Sobralia Sanderiana, Odontoglossum crispum Roi Leopold, a very remarkable spotted form; O. grande Sanderæ, a charming wholly yellow variety; Lycaste Skinneri Baroness Schroder, resembling the best form of L. S. alba, with a delicate blush on the sepals and lip; Lælio-Cattleya × Duke of York, a very handsome hybrid; and Cattleya Trianæi Sanderæ, a charming and novel flower. Of other novelties in Orchids of the year, mention should be made of the brightly-coloured Miltonia vexillaria Empress Victoria Augusta, shown by Messrs. BACKHOUSE; the fine Lælio-Cattleya × Henry Greenwood, shown by Messrs. B. S. Williams & Son.

Continental novelties have been more than ordinarily plentiful, though only a small proportion have been exhibited in Great Britain :—

M. LINDEN, l'Horticultural Internationale, Brussels, have been especially strong in fine forms of Odontoglossum crispum, which their remarkably good culture enables them to show at their very best. On several occasions they have staged groups of Odontoglossums showing the most bewildering variations, not the least beautiful being the many forms of their importation, which gave O. × Adrianæ, and which forms the type of a set which may be natural hybrids of O. Hunnewellianum. One of the handsomest is O. × A. venustum, for which they secured an Award at the last Temple Show, when the fine O. crispum zebrinum, O. c. decorum, O. Pescatorei bellatulum, and others, were similarly distinguished. Their varieties of Cattleya Mossiæ and C. Trianæi have also produced fine novelties, of which C. Mossiæ Marguerite is a good example; and the Moortebeeke forms of O. × Wilckeanum, beautiful though they are, are very puzzling to the one who wishes to thoroughly understand their derivation.

M. MADOUX, of Auderghem, showed at the Temple Show the pretty Odontoglossum × Adrianæ Charlesiana, and two or three other pretty varieties.

M. CHAS. VUYLSTEKE also showed at the Temple Show Odontoglossum × crispo-Harryanum, a home-raised hybrid of delicate markings, nearest in appearance to a pale O. Harryanum.

M. CHAS. MARON, of Brunoy, near Paris, the raiser of so many good hybrid Orchids, began the year with the handsome Lælio-Cattleya × Henry Greenwood, which took the Medal for the best hybrid Orchid at the Ghent Quinquennial Show; and later he showed the fine Cattleya × Maroni (velutina × Hardyana) at the Royal Horticultural Society, when it was pronounced one of the best new plants of the year.

Altogether, there is sufficient evidence of good progress in every branch of Orchid culture.

New or rare Orchids illustrated in the *Gardeners' Chronicle*, in 1898, include the following:—

Aceras Bolleana, June 11, p. 365.
Cattleya × Maroni, November 5, p. 332.
Cirrhopetalum appendiculatum, December 10, p. 415.
Dendrobium nobile Ashworthianum, April 2, p. 203.
Epi-Cattleya × radiato-Bowringiana, June 25, p. 391.
Eulophiella Peetersiana (flower-spike), Supplement, April 2.
Eulophiella Peetersiana (plant), April 2, p. 200.
Lælia anceps Amesiana, Crawshay's var., January 22, p. 59.
Lælia anceps Waddoniensis, February 26, p. 125.
Lælio-Cattleya × Henry Greenwood, November 26, p. 383.
Lælio-Cattleya × Digbyano-Trianæi, Jan. 1, p. 8.
Odontoglossum crispum Prince of Wales, June 25, p. 390.
Odontoglossum × Wilckeanum, Pitt's variety, May 7, p. 274.
Phalænopsis × John Seden, March 19, p. 171.
Phalænopsis × Ludde-violacea, July 16, p. 43.
Phalænopsis × Schroderæ, April 30, p. 259.
Renanthera Imschootiana, January 15, p. 41.
Spathoglottis × aureo-Veillardi, May 21, p. 309.
Stanhopea Madouxiana, August 20, p. 135.
Stanhopea Rodigasiana, July 9, p. 31.
Vanda × Miss Joaquim, Supplement, August 31.

(*To be continued.*)

FLORISTS' FLOWERS.

CARNATION PRINCESS MAY FOR WINTER FLOWERING.

THIS Malmaison breed of Carnation makes an admirable winter-blooming plant, as may be seen by any one calling at the nursery of Mr. C. Turner, Slough, where a large house is devoted chiefly to this variety. About 2000 plants are grown, the variety being in good demand; and at the time of my visit a few weeks since some hundreds of open and partially-expanded blossoms were in evidence, and flowers were being cut daily. The large, deep rose flowers are very useful at this season for button-hole and other cut-flower purposes. For winter flowering, cuttings should be inserted in early spring, and the plants grown on into 5 and 6-inch pots. *C. H.*

LATE-FLOWERING WHITE CHRYSANTHEMUMS.

We have now several late white flowering varieties, that are a distinct advance upon older kinds. For years I have interested myself in testing varieties for this purpose. Half-a-dozen sorts from those following would be difficult to beat, and the type they represent is really the best for various forms of decoration. Mrs. M. Simpson, raised in 1896, is an English seedling, and is naturally so late in flowering that it is extremely difficult to bloom the plants in November under the orthodox system of large bloom production. The full centred, solid blooms are of the purest white. From six to nine blooms on a spray are produced on stout stems, which is all in its favour when required for vase decoration.

Niveum is well known as a really good December-flowering Chrysanthemum. With age the blooms assume a slight creamy-white tinge of colour. For freedom in flowering none can surpass this American-raised variety, as many as a dozen blooms are borne on single sprays.

The Queen as a pure white Christmas flowering variety is excellent. The lance-shaped florets are rather short, but the bloom is a full and solid one.

Mrs. Weeks is well known as one of the best of incurved Japanese for November flowering to require much description here. When cultivated to produce late flowers, it is a most desirable variety. The florets in an exhibition flower are naturally of an incurving character, but under this treatment they reflex perfectly.

Simplicity produces pure white blooms, with long drooping florets, but the peduncles are weaker than desirable.

L. Canning is perhaps the best of all for January and February flowering. The florets are flat and of the purest white. To successfully grow late blooming plants, the cuttings should be struck early in January in the ordinary way. Top each plant when it is 6 inches high, to increase the number of shoots at the base. Repeat this operation when 6 inches more of growth has been made, and again early in July. After that allow the shoots to grow away uninterruptedly, each forming as many bloom-buds as they may. Grow the plants in frames as near to the glass as possible, to encourage a stocky habit. When all fear of frost has passed, put the plants out in the open ground, choosing an open situation, away from high walls or overhanging trees. The soil ought not to be too rich, or the growth will be too sappy to admit of the necessary maturity of wood. Fully a yard of space should be given each plant, so as to avoid overcrowding. Should the weather be hot and dry, copious root-waterings will be necessary.

Some support will be required to prevent the branches being broken by wind, or heavy rains. This is best done by placing a stout stake to each plant to which the shoots may be loosely tied. Cut around the roots of each plant with a spade at the end of September, to check growth, and thus enable the plants to better withstand the lifting a month later without check. Use a rather rich compost for potting-up the plants, and place them in a shady position for ten days, syringing them daily during dry weather to prevent the leaves flagging, and to encourage quick root-action. The plants should be allowed to stay in the open as long as frost is not anticipated. When, however, they have been placed into cool-houses, admit an abundance of air, and to stimulate growth give them frequent applications of liquid manure. Except large blooms are desired, no disbudding need be done, and the whole of the buds will then develop blooms as best they may. *E. Molyneux.*

CHRYSANTHEMUM CULTIVATION.

If cuttings were inserted early in December they should now be forming roots. The strongest growing varieties are generally the first to emit roots. A little air should then be admitted by tilting the lights slightly, increasing the degree until they may be removed entirely. But while some of the plants need air, the leaves of others that are less strong and have not rooted will flag. These should be removed to a frame by themselves, and kept closer than those which do not flag, but require more air. When the plants are well rooted, and will bear free exposure to the air without flagging, remove them from the hand-lights and place them upon a shelf close to the glass in the same house. If the house be not provided with shelves, temporary ones can easily be put up by suspending them from the rafters by means of strong wire and screws. The shelves may be about 9 inches wide, according to circumstances, and on each side there should be a groove, so that the water will run to one end, for which purpose a slight slope should be allowed when fixing the shelves.

The soil in which the plants are growing should never be permitted to become dry. Directly the pots are full of roots, the plants should be shifted on into larger pots. From the thumbs in which they were rooted, they should be put into 3½-inch pots. If a check to growth occurs at this stage, owing to the repotting being deferred, it will be a serious misfortune. For a compost, use two parts fibry-loam, one part leaf-soil, and one part decayed horse-droppings, with a free admixture of sharp silver-sand. For the greater convenience in potting, pass the compost through a coarse sieve, rubbing the fibrous pieces through also, and pot firmly; the pots must be quite clean, and well drained. If the soil be moist when used, as it should be, no water will be required for a day or two.

If by chance any plants receive too much water, and the leaves become pale in colour, allow the soil to become dry almost to flagging point for a couple of weeks, and new roots will form, and a return of colour to the leaves through the midrib will be noticed. In stubborn cases half-an-ounce of sulphate of iron dissolved in water will quickly restore the loss sustained. It is not wise to allow the plants to remain for long in this pale sickly condition. No position is better for the plants until they are again established than the shelf to which I have already alluded. When well-rooted again, put them close to the glass in a cold frame where frost will not penetrate. *E. M.*

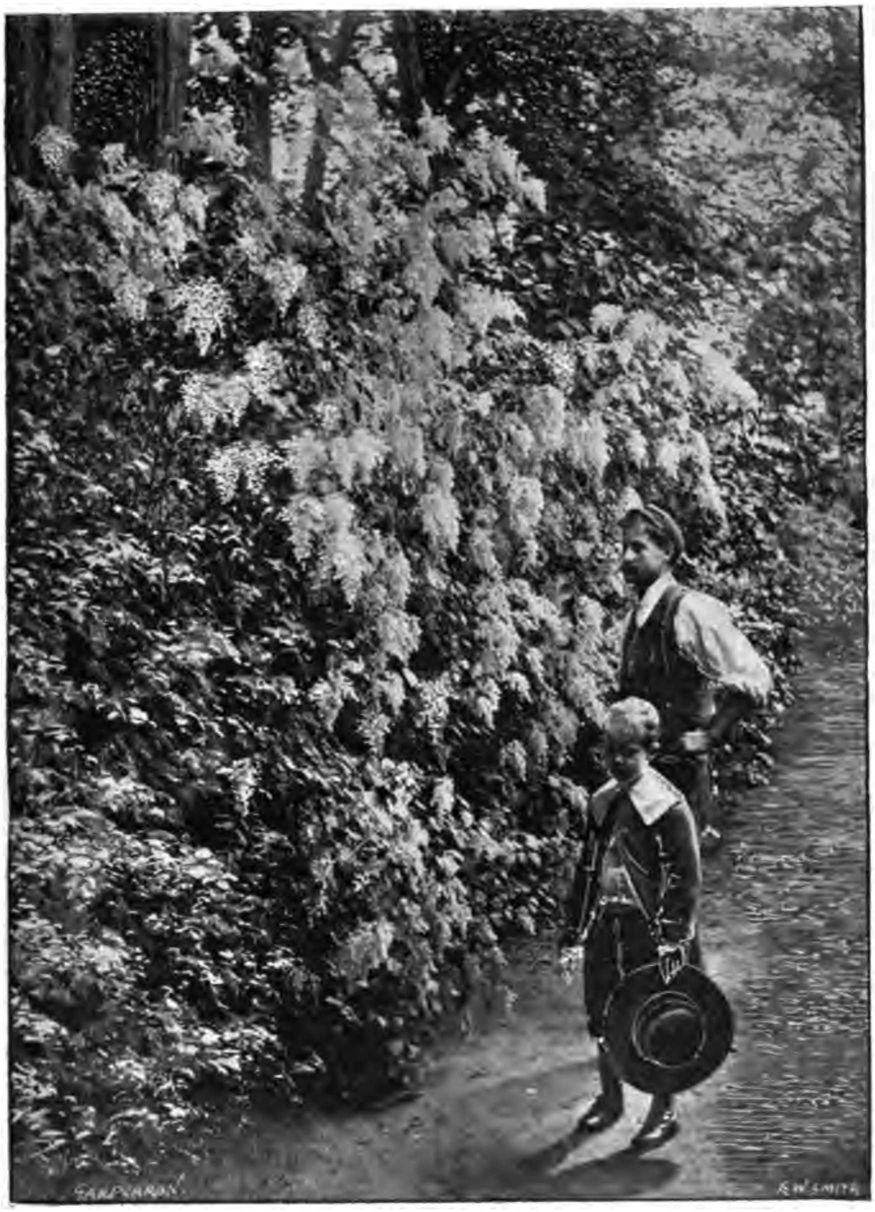


FIG. 6.—SPIRÆA DISCOLOR (*ARIÆFOLIA*) IN MR. E. R. BELLYSE'S GARDEN, OAKFIELD, NANTWICH. FLOWERS DIRTY WHITE.

SPIRÆA DISCOLOR
(*ARIÆFOLIA*).

AMONG the more robust-growing Spiræas this species would rank as one of the most striking, by reason of its long, pendulous, shaggy-looking inflorescence; and where the plant is afforded a good deep soil, and a sunny situation, with a plentiful supply of moisture at the root, Spiræa ariæfolia is no mean-looking decorative object. The rigid cuneate leaves are dark-green above, and silvery beneath. The plant is evidently at home in Mr. Bellyse's garden, Oakfield, Nantwich. The photograph from which the illustration (fig. 6) was prepared was taken on August 22, 1898.

TREES AND SHRUBS.

BERBERIS ANDREANA.

IN the current number of the *Revue Horticole* M. Naudin describes and figures a new species of Berberis, found in Uruguay by M. Ed. André, and introduced by him into cultivation in the Riviera. The leaves are tufted, coriaceous, persistent, ovate, lanceolate, entire. The yellow flowers are in long loose pendulous racemes, as in the Red Currant.

BETULA NIGRA (THE RED BIRCH).

Beautiful as are the Birches when in leaf, it is in winter that their individuality becomes most marked. The unusual colours of the bark, and the peculiar elegance of the trees' growth give them an unique place among deciduous vegetation. To none does this apply in greater degree than to our native White Birch, which is one of the most effective of trees in winter. Of several other species possessing the same character, the white Paper Birch (B. papyrifera) is the most noteworthy. Quite distinct from these silvery-barked species is the American Red Birch, one of the most characteristic and picturesque of all trees. In spite of its value and of the fact that it was introduced in the middle of the last century, this species has been very little planted in this country, and is still one of the rarest of American trees. Its chief peculiarity is in the dark-coloured bark, which peels away from the trunk and stands out in large flakes, giving a curiously rough, ragged aspect to the tree. It differs also from the other tree Birches, in that it branches both in Nature and under cultivation into three or four secondary trunks, when a few feet from the ground. Sometime ago a correspondent enquired in the *Gardeners' Chronicle* for trees other than Willows, Alders, and such like that would thrive in very moist positions. I think this Birch would be well worth trying on low lake-islands, by water-courses, &c., for it often grows wild in south-eastern districts of the United States under semi-aquatic conditions. At the same time it thrives in ordinary positions as well as other Birches.

THE YELLOW-BERRIED HOLLY.

Among evergreen trees and shrubs that have been introduced to this country, it is difficult to point to one which, in hardiness, beauty, and general usefulness combined, surpasses our own native Holly; one might almost add, "in variety," too, for it has sported into a wonderful number of forms, to which every year additions are made. Although not a new variety, the Yellow-berried Holly deserves special mention at this season. The year has in this district been a good one for the fruiting of the Holly, for the twigs of the common red-berried variety, as well as those of this yellow one, are thickly covered with berries. Unless the day happens to be bright, and the trees are lit up by direct sunlight, these yellow berries are, I think, even brighter and more effective than the red ones. However that may be, it certainly deserves to be grown for mid-winter effect, and it is just as hardy and vigorous as the common Holly.

Cotoneaster rotundifolia.

Several of the Cotoneasters are noteworthy for the beauty of their fruits, but this year by far the finest of them is C. rotundifolia. It is one of the most ornamental shrubs at new-year-time, its branches being very thickly laden with bright red berries. Like the majority of the Cotoneasters, it comes from the Himalayas. It is evergreen, the Box-like leaves being of a dark, lustrous green, almost round, and from a quarter to half-an-inch long. The berries are about the size and shape of the haws of the common Hawthorn, but are of bright scarlet-red. It has a spreading habit, and does not appear likely to grow more than 4 feet to 5 feet high. Its branches have much the same flat-growing character as those of C. horizontalis, although not so marked. C. horizontalis has smaller berries and is deciduous, although it is frequently described in catalogues as evergreen. *W. J. B., Kew.*

The Week's Work.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

The Houses.—An effort should be made to thoroughly clean the glass, woodwork, and stages of all plant-houses at least once a year; and whenever the weather is unfit for outdoor operations, a favourable opportunity is afforded for undertaking this important work.

Herbaceous Calceolarias.—To be thoroughly successful in the cultivation of this showy plant, it is essential that its requirements be promptly anticipated, and one of the most important of these is a cool, moist position, where a steady hardy growth may be maintained. Such a position is found in a pit or frame provided with a hot-water pipe, into which sufficient heat may be turned to exclude frost, and maintain a temperature of from 38° to 45° according to the outdoor temperature. Abundant ventilation is another important factor. A small amount of fresh air should be afforded when the temperature of the pit reaches 40°, increasing the amount as the temperature rises. A too close atmosphere induces a weak flabby growth, which will flag and droop over the pots upon the first sunny day, and it also favours the attacks of green-fly. Another point is to so order the re-potting that the plants are kept steadily progressing, neither performing those operations too soon, which would result in the plants being over-potted ultimately, nor delaying them too long, which would entail the loss of the bottom leaves, and cause the plants to throw up their flower-stems prematurely. A suitable compost for herbaceous Calceolarias may consist of three parts loam and one part leaf-soil, or rotten hot-bed or Mushroom-bed manure, together with sufficient sand to keep the soil sweet and open. If large plants are required, the first main flower-stem may be pinched out as soon as it appears, and the plants potted into pots a size larger; a larger number of flower-stems will then be produced, and the result will be a much finer head of bloom. If the plants have been strongly grown, a 7 or 8-inch pot will not be too large for the final shift, but good decorative plants may be grown in 6-inch pots. A sharp outlook should be kept for green-fly in its favourite hiding-place, the under-side of the bottom leaves. At this time of the year they are few in number, and may be dealt with by the finger and thumb; but if undetected, they remain until the warmer weather arrives, when they increase in number with marvellous rapidity, and it is then a difficult matter to thoroughly eradicate them on account of a way they have of taking up their quarters in the interior of the pouch-like flower.

Bulbs and Flowering Shrubs in Pots.—Introduce batches of these into heat as may be required. The forcing must be gradual to produce the best results, and all bulbs should be brought forward in an intermediate temperature before being introduced into the forcing-house. Rhododendrons, Ghent Azaleas, Lilac, Staphylea colchica, Spiræa arguta, Deutzia gracilis, Gueldres Rose, Hydrangea paniculata, Kalmias, &c., may be placed in a vinery or Peach-house which is being started, where the gradually-increasing temperature and moist atmosphere will meet their requirements perfectly.

Gesnera exoniensis.—Few winter-flowering plants are more easily grown or more effective than the above. The velvety foliage alone is beautiful, covered, as it is, with shining red hairs, and when to this is added the strong trusses of rich orange-red flowers, the whole effect is very striking, and this is particularly the case under artificial light. The flower-spike lengthens out and produces a succession of flowers over a considerable time. Plants that are now coming into flower may be assisted by occasional applications of weak liquid-manure, bearing in mind that an overdose would injure the fine hair-like roots.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Preparations for Forcing.—It will be necessary to hurry the completion of preparations for forcing early Carrot, Potatos, Seakale, &c. Get together sufficient leaves and manure, and turn them over twice or thrice, mixing them thoroughly together before making up the hot-beds. Have the brick-work of the pits well cleaned, and give it a good lime-washing. If the brickwork needs any pointing, this should be effected before the lime-washing is commenced. Clean the glass and the woodwork with a view to destroy any insects there harboured, and to facilitate the admittance of light to the young plants. In making hot-beds, aim to secure a mild lasting heat, and ram the materials very tightly together, especially in the corners and along the sides. Do not plant the tubers or sow the seed before you have ascertained the exact heat, which at the surface should not exceed 75°. The soil for most purposes should be light and moderately rich. It must not be thought that any old previously-used potting-soil is sufficiently good for early vegetables. A sweet fresh compost is the best, and this may be used again for another batch of plants following the early vegetables.

Asparagus.—Batches of roots should be lifted at certain intervals, and placed closely together over a gentle heat. Cover them with soil or leaf-mould to the depth of 3 inches. Give a gentle watering with tepid water through a rose-can, and keep the frame moderately close for a few days. Do not, however, force this vegetable severely. The grass should be ready for use in about twenty days. A temperature of 60° will be ample, as when the young heads are well above the soil the flavour will be greatly improved and the colour better if a little fresh air be admitted daily.

Seakale.—If pots have been over the Seakale crowns and covered to a reasonable depth with prepared fermenting material, it will be necessary to see that the heat does not become excessive, or the young stalks will be so spindly as to be of little use. All crowns it is intended to force in their permanent quarters should be cleaned at once and then covered with leaf-mould or ashes, the material first named is the better of the two. Seakale commences to grow naturally very early in the spring, and if the crowns be not kept dark from the very first they will fail to bleach. Those crowns that are to be lifted for forcing in tubs and pots, or under the lower stage in a Mushroom-house, may be removed at once and kept in the dark until such time as they are required. Retain the straight young roots (thongs), and tie them in bundles for making fresh plantations. Cut the upper end of each straight across, but the lower end in a slanting direction, that the planter may know how to set each piece at the time of planting. Young pieces, about 6 inches in length, with or without crowns, will be found suitable.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener, Dropmore, Maidenhead.

Pruning. — Where not already finished, the pruning of the Apple, Pear, Plum, Apricot, and Sweet Cherry trees should be finished without delay. This remark applies to wall-trees as well as to those standing in the open quarters and orchards. Where the usual summer-pruning was carried out, but little further will remain to be done. Bush or pyramidal Pears and Apples should have the leading shoots shortened more or less, according to their strength, weakly growths being cut back to one or two eyes, and strong ones left almost at their full length. If the leading branches are too numerous and crowded to allow of light reaching the inner portions of the crown, the worst placed of them should be sawn off close or within half an inch of the main stem of the tree, smoothing the cut surfaces afterwards with a knife, and painting with a mixture of Stockholm-tar and clay in about equal proportions.

Morello Cherries, and Peaches and Nectarines may be taken last in regard to pruning and nailing; and where labour is not stinted, the two last may be taken down from the walls and made secure to stakes placed about 1 foot distant therefrom, with a view to retarding the bloom. The trees may be left in this position until the buds are on the point of expanding.

Gooseberries and Currants should also be pruned forthwith, especially where birds do not devour the buds. With Gooseberries, little spurring back is really necessary to ensure heavy crops of fruit if the bushes are strong and healthy. My method of late years has been to thin out the main branches, cutting out annually the oldest and worst placed ones, and allowing sufficient space to pass the hand through the bushes in gathering the fruits. A few of the longest shoots are topped; in this manner the pruning takes less time, and very heavy crops are obtained. Much the same kind of practice may be followed with Red and Black Currants, although the former are cut in rather more severely than Gooseberries, the side-growths being spurred back to two or three eyes, and the leading ones shortened to about half their length. The larger branches are thinned out annually, and strong young ones afforded space. With Black Currants, thinning is all that is necessary, strong young growths from the base being encouraged. In gardens where bullfinches abound, it is a difficult matter to preserve the buds of the Gooseberry and Plum, and after trying the spraying of the bushes with lime, soot, and other mixtures, including paraffin and Quassia decoctions, I find there is nothing to equal the gun loaded with dust-shot and half a charge of powder. An old-fashioned plan sometimes practised for preserving Gooseberry-buds from birds is to tie the bushes into compact masses by passing string or a green band round each, and drawing the branches tightly together, and allow them to remain thus tied up till the buds are bursting. Cuttings of Gooseberries, Red and Black Currants, should be selected now, if it be desired to increase the stock of plants. Healthy shoots, about 15 inches in length, should be chosen, and for Gooseberries and Red Currants all the lower buds should be cut clean out, leaving only four or five at the top. No buds should be removed from Black Currant cuttings, a succession of growths from the base being desired. These cuttings may be laid in temporarily, or, if the land is ready, and the weather suitable, they may be planted forthwith in rows 12 inches apart, and 6 inches asunder from cutting to cutting.

Grafting.—Preparations may be made for this operation, at least in so far as relates to taking the shoots of varieties to be substituted for others less worthy, and heading-back such trees as are to be grafted. The heading-back may consist of leaving 6 to 12 inches beyond the point to which they will be cut when grafted. The shoots for forming grafts should be selected from quite healthy trees, and be tied together in small bundles, labelled, and the butt ends buried a few inches in the soil in a cool place.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Early Strawberries.—Assuming that the earliest batch of plants were placed in a cool house in the beginning of last month, these will now be showing signs of activity, and requiring their removal to another structure in which slightly higher temperatures are maintained. They need all the light possible, and if stood on shelves, these are better lined with wood-moss or freshly-cut turves, the grassy side of which should be turned downwards. As the plants advance into bloom, let all expanded flowers be fertilised by hand, doing this every morning when the blossoms are quite dry, and the pollen easily detached with a camel's-hair pencil. Unless this operation be carefully and regularly attended to, perfect berries are unobtainable. Once the flowers are set, the plants may be pushed on briskly in a Melon or Cucumber-house or in the Pine-stove. A dressing of artificial manure applied once a week will stimulate growth in berry and leaf, similar results being obtained from alternate applications of diluted farm-yard manure.

Successional batches.—A larger batch of plants may now be brought indoors to succeed that already started. Before the plants are placed in warmth, the dead leaves and upper-crust of soil should be removed, the latter being replaced with loam, leaf-mould, a pinch of potash, and a table-spoonful of bone-meal per plant. After a time the weekly surface sprinkling of artificial manure may be repeated as for the earlier batch. Royal Sovereign is one of the best early varieties for present forcing, and any newly-started vinery and Peach-house will furnish just the right kind of conditions for successions until the shelves become shaded with the foliage of the Vines, &c. A constant danger with Strawberry plants in vineries and peacheries, is the spreading of red-spider from the former to the Vines and Peach-trees. Before Strawberry plants are placed in such structures, the under-sides of the leaves should be coated with flowers-of-sulphur, and the plants kept no longer in them than is necessary.

Melons.—A large sowing in variety may now be made in small pots filled with a sufficiently moist loamy soil to support the seed through the germinating period without the need of affording water. One good seed should be placed in the centre of each pot, or two if there is doubt about their germinating power, the weaker plant being drawn out. A brisk heat obtained either from a bed of tree-leaves and stable-manure, or from hot-water pipes, is necessary to ensure a satisfactory start.

Cucumbers.—What has been advanced with respect to Melons, applies also to the Cucumber, excepting that the compost used in filling up the seed-pots should contain a good proportion of leaf-mould, cocoa-nut fibre refuse, and sharp sand. Earlier-raised plants may be re-potted and returned to the same frame or house in which they were raised. In re-potting, the roots should be most carefully handled, and the soil and the pots should be made as warm as the bed out of which the plants have come, any check arising from neglect of this precaution being very slowly recovered from at this season. Soils, decayed manure, and leaf-mould for future potting or making of beds ought, if not already done, to be brought under cover.

The Second Early Vinery.—If red-spider, mealy-bug, or mildew caused trouble last year, the Vines should be dressed with tar and clay, the best known remedy to use against mealy-bug. This dressing should be brought to the consistency of thin paint, and be applied with a half-worn-out paint-brush to every part excepting the buds. Sulphide of potassium or sulphate of iron are antidotes for mildew and red-spider if used at a strength of half-an-ounce to 1 gallon of warm water. This should be brushed into every crevice after the house has been thoroughly scrubbed down, the walls lime-washed, and the upper-crust of the inner borders cleared off.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Treatment of the Houses during Fog.—The characteristics of fog vary according to the districts in which it occurs, those in the country far removed from the Metropolis and large manufacturing towns being more beneficial to certain classes of Orchids than hurtful, and therefore fog of this kind need not concern us; but the one, more particularly known as the "London" fog, a compound of ordinary mist or vapour in which the injurious gases evolved from coal-smoke are mixed, is that which has so many terrors for the cultivator of Orchids. Its action is baneful in two directions, first, it banishes daylight at a season usually when sunlight is of short duration; and secondly, the sulphurous acid present in it spoil the plants, and ruins the expanded and opening flowers, and sometimes the prospects of the future. To mitigate the evils of a smoke-laden fog, there are a few simple precautions which, if taken in time, allow of Orchids coming through the foggy season without much loss of flowers and buds, or other injury to the plants. The plants should be kept at such times more dry than wet, the atmosphere also should be fairly dry, and to this end damping operations should be practiced as little as may be desirable, so long as the plants do not suffer in health. The temperatures of the various houses should be kept just above the minimum during the daytime, and if anything a trifle below it at night. Of course, the grower cannot always know when fog is coming on, and he cannot, therefore, be quite prepared for it. As instance, it may follow a sunny day, which may have been taken advantage of to afford water to the plants, and damp down a little more than usual. In such a case a higher temperature is necessary in order to get rid of the moisture present in the air of the houses. It need hardly be said that no air should be admitted by the ventilators whilst a thick fog covers the district.

The Cattleya-fly and its Grub.—One often hears accounts from orchidists of the ravages wrought by this exotic insect, Isosoma orchidearum (fig. 7), and those who have not yet made its acquaintance, are always interested to learn what it is like, and what it does, and how its presence is made known. So far as my observations go, the fly is a pale yellow-coloured insect, with transparent wings, almost an eight of an inch long. In the fly state it does no actual harm, excepting that it deposits its eggs on the growing mucilaginous tip of the root, which in time become embedded in it, and as the grub develops, a globular swelling is produced. To all appearances these swellings do not arrest the growth of the roots, for in many instances I have picked five grubs from one protuberance, and the growing part of the root has remained healthy. At first I used to remove the roots on which eggs were laid, doing thereby probably more harm than the grub; but now I let them alone until the growing-point has got a few inches beyond the affected part, and then carefully pick out the grubs with a knife-point, and thus, in most cases, save the roots from destruction. The most harm is done when the eggs are laid in the bud, which would, in the ordinary manner, develop into a rhizome and pseudo-bulb. Its presence here is detected by an abnormally strong break, the bud becoming two or three times the size of that it should have, and if allowed to remain, it would seldom extend beyond the bract stage, the leafy portions becoming quite crippled. The remedy for this is to carefully remove the affected growth, so that the plant may exert its energies in building up the secondary bud which may exist upon it. Although I have had, I might say, hundreds of roots attacked during the past season, there has only been one growth affected as described above. Now that there is no pressure of work, the occupants of the Cattleya-house should be examined with a view to exterminate the grubs. Frequent light fumigations all through the year, with XL-All is a good means of keeping it under by destroying the fly.

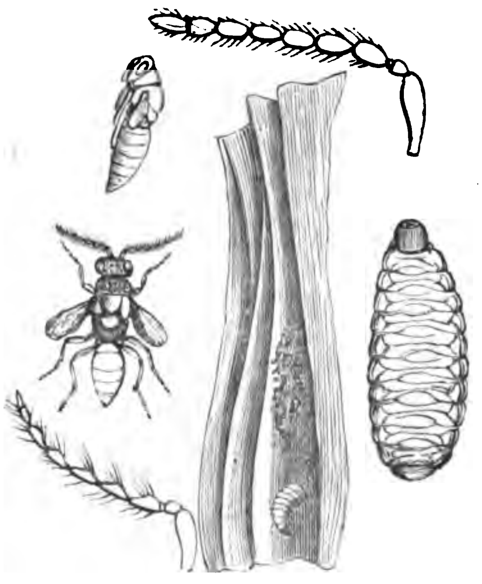


FIG. 7.—ISOSOMA ORCHIDEARUM, OR CATTLEYA-FLY.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

The Home Nursery.—All who have much planting to do know full well the advantage of having trees and shrubs growing on the estate, either to plant new shrubberies, &c., or to take the place of those that may have become sickly or have died. Those who contemplate making this useful accessory to a gentleman's place, should select a piece of ground of good quality, fully exposed to the sun, protected from the cold north and easterly winds, and securely fenced against hares and rabbits. The land should be well drained—artificially if not naturally, and be trenched throughout, adding accordingly to the richness of the soil, burnt ashes, leaf-mould, and manure. A good stock of Hollies, Berberis, Aucubas, Laurels, Phillyreas, Yews, Cotoneasters, Privets, Lilacs, Laburnums, Cratægus, Viburnums, Spiræas, Weigelas, and Box in varieties should be secured in young examples, these forming the groundwork of most sorts of ornamental planting. Plants ranging from 1 to 2 feet are the best size to plant in a nursery, and these should be planted in rows sufficient distant apart to allow men to pass between them in cleaning the ground, &c. Let the best part of the ground be selected for planting the choicer Conifers, viz., those with glaucous, yellow and white variegation, and those of handsome aspect. In planting afford sufficient space from plant to plant to allow light to reach them on all sides and give uniform growth, and allow of sufficient soil coming away with the roots when lifted.

The Reserve Garden.—At this season let a piece of open ground be prepared for parting and planting such plants as will be needed for furnishing cut-blooms, and thus save the specimens growing in ornamental grounds and beds from disfigurement. Such plants as perennial Asters, Iris, Pæonies, Oriental Poppies, also annual species of Phloxes, Sweet Peas, Delphiniums, Eryngiums, Cimicifuga, Bocconia cordata, Gypsophila, Statice latifolia, Gaillardias, Campanulas, Solomon's Seal, Helianthus and Erigeron, these are easily grown, and effective when cut and put up with their own foliage.

Trees with Coloured Bark.—Nothing brightens up the landscape so much in the winter as the beautiful bark of trees and shrubs, and though there are many, such as the Japanese Wineberry, several of the Spiræas, Roses, and Limes, none can equal in brilliancy the bark of the Cardinal and Yellow Willows, and the varieties of Dogwood—Cornus sibirica and C. stolonifera, syn. alba. The Willows are known under the names of Salix cardinalis and S. rubra, red-twigged; and S. vitellina of a yellow hue. These can be grown into large trees, and are most effective when planted amongst the Conifers as pollard trees by the side of streams and ponds, and as bushes in the pleasure-ground. They prefer a deep, not too rich, soil, and one that is thoroughly drained. The pollarded trees should be cut back every five, and the bushes every third year; propagate these by dibbing in stout pieces about 18 inches long, dibbed in nursery. Well watered in spring, they soon take root, and grow into bushes and trees. The Birches should not be forgotten, nor Acer pennsylvanicum (striatum), the Canada Poplar, the Tulip-tree, Gymnocladus canadensis, and Bignonias (Catalpas). Of Dogwood, the two varieties Cornus sibirica and C. stolonifera are best planted in clumps and masses. They require to be pruned back once in three years. It is the young wood that produces the fine-coloured bark; C. sibirica has bark the colour of red sealing-wax; select a position in planting facing west, as it is apt to have the young shoots damaged by spring frosts. Propagation of this can only be by layering, and the best month for this is September. C. stolonifera (syn. alba) is much hardier, can be grown either on outside of copse or woodland. The bark of this resembles the colour of Henri Jacoby Pelargonium; in planting, select positions where the sun can shine upon them. This variety can be propagated as easily as Privit: cut up in pieces 1 foot long, plant in rows; they will be fit to transplant in the second year. They do not like a too retentive soil, neither will they stand drought. The wood of this makes pot-baskets, and can be used as withies for tying bundles.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER.**

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	Jan. 14	Royal Botanic Society Meet.
MONDAY,	Jan. 16	National Chrysanthemum Society Executive Committee Meet. Shirley Gardeners' Improvement Society Meet.
TUESDAY,	Jan. 17	Loughborough Gardeners' Improvement Society Meet.
WEDNESDAY,	Jan. 18	Renfrewshire Gardeners Meet.
THURSDAY,	Jan. 19	Linnean Society Meet. Gardeners' Royal Benevolent Institution: Annual Meeting, and Election of Pensioners, at "Simpson's," Strand, London.

SALES.

MONDAY,	Jan. 16	Roses, Lilies, Hardy Perennials, &c., at Protheroe & Morris, Rooms.
TUESDAY,	Jan. 17	Hardy Border Plants and Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY,	Jan. 18	Japanese Lilies, Palm Seeds, Continental Plants, Greenhouse Plants, Roses, Shrubs, &c., at Protheroe & Morris' Rooms.
THURSDAY,	Jan. 19	Carnations, Spiræas, Iris, Roses, &c., at Protheroe & Morris' Rooms.
FRIDAY,	Jan. 20	Hardy Climbers, Hardy Border Plants, and Bulbs, at Protheroe & Morris' Rooms. Imported and Established Orchids' at Protheroe & Morris' Rooms.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—36·9°.

Actual Temperatures:—

London.—*January* 11 (6 p.m.): Max., 44°; Min., 36°.

Provinces.—*January* 11 (6 p.m.): Max., 44°, Cromer; Min., 38°, York.

The Physic Garden at Chelsea.

Frequent mention has of late been made in the daily papers of the Physic Garden of the Society of Apothecaries, at Chelsea, long under the curatorship of the late Mr. Thomas Moore. The history of this interesting relic has been given repeatedly in our columns, with illustrations of its principal features. Of late years it has fallen into decadence, and the Society of Apothecaries became desirous of being relieved of what had become a burden to it, the more so as in virtue of comparatively recent legislation, botany no longer forms part of the curriculum and study demanded of medical students.

The Charity Commissioners, to whom the Society applied, have framed a scheme for the administration of the garden, which consists of 3½ acres, established by Sir Hans Sloane by an indenture dated February 28, 1721-22, with the curator's residence and other buildings, a yearly sum not exceeding eight hundred pounds for maintenance payable out of the income of the City Parochial Foundation (as set up by the Acts of 1883 and 1897), a yearly sum of not less than one hundred and fifty pounds out of moneys voted by Parliament, and the subsidiary gifts of John Meeres (1726) and Mrs. Ann Rand (1757).

The garden is to be maintained for promoting the study of botany, with special regard to the requirements of (*a*) general education; (*b*) scientific instruction and research in systematical botany and vegetable physiology; and (*c*) instruction in technical pharmacology, as it concerns the culture of medicinal plants. The scheme provides for the erection of new offices, lecture rooms, and a physiological laboratory, the appointments of a curator and a head gardener, the establishment of lectures upon botany, and the maintenance of collections of living plants for teaching purposes. The students and professorial staff of the Royal College of Science are to be accorded free admission into the garden, with use of the collections, lecture-rooms, and appliances, so long as the sum of £150, or more, shall be paid in that behalf to the Trustees of London Parochial Charities, as trustees of the re-modelled charity. The committee of management is to consist of fifteen persons, nominated by the London Parochial Charities' Trustees (eight), the Treasury, Royal Society, Society of Apothecaries, Pharmaceutical Society of Great Britain, and other public bodies (one apiece). The trustees are empowered to contribute a sum, as yet undetermined, for the equipment of the garden and for new buildings.

We are specially pleased to see that scientific instruction and research in systematic botany and vegetable physiology are to be provided. Thirty or forty years ago vegetable physiology was at a very low ebb indeed in this country. Histology, or the investigation of the minute anatomy of plants by means of the microscope, was in arrears in comparison with its condition in other countries; and the natural history of the so-called flowerless plants was scarcely studied here at all. We are not going to contrast the present state of things with the past further than to say, that the pendulum has swung to the full in the opposite direction, and that systematic botany is now-a-days, in spite of its great importance, scarcely studied at all. Without in the slightest degree derogating from the other departments of the science in which such great progress has been made, we may lament the little attention now paid to the knowledge of plants in general, and of their affinities and uses. Now-a-days the student gets to know about parenchyma and sclerenchyma, centrosomes and mitoses, when he is unable it may be to recognise the botanical differences between the flower of a Cabbage and that of a Cucumber.

The medical profession till lately furnished the great majority of our botanists. They took service in India and the Colonies, took part in exploring expeditions, and they contributed enormously to our knowledge of the botany of the globe. It is to be feared that the medical men of the future will not be so well equipped for this purpose as their predecessors were, and that systematic and economic botany will suffer proportionately. The matter is also of much consequence to horticulturists, who are expected to be familiar to some extent with the leading Natural Orders of plants, their relationships, points of difference, and economic uses. It is to be hoped, then, that the old Chelsea garden will not be given up wholly to microtomes and staining agents, but that the old traditions will be kept up in the shape of practical instruction in systematic botany.

There are still some among us who recall with pleasure and gratitude the lectures given in the garden by the late Dr. Lindley. Attendance on those lectures involved a long walk from the centre of London in the early morning before steamboats or omnibuses were running. On arrival at Chelsea about half-past 8, the students found the Professor prepared to give a lecture analogous to the "clinical" lectures the pupils were accustomed to in the hospitals. Just as the physician took for the subject of his comments and explanations any cases that might be under observation in the wards at that time, so Dr. Lindley availed himself of any plant of interest that might be in bloom in the garden. With the aid of the blackboard, he explained its structure, showed wherein it differed from its neighbours, pointed out its relationships, near or remote, and indicated its use for medical or other practical purposes. It may be imagined how fresh and interesting these lectures were in contrast to the stereotyped courses given in the college lecture-rooms, which were, for the most part, a mere hash-up of the information given in the text-books. Of late years Mr. J. G. Baker delivered set courses of lectures in the same garden, which were much appreciated. We earnestly hope that in the rejuvenated Physic-garden means will be taken to provide adequate instruction in systematic and morphological botany, in their relation to economic uses.

Arundinaria Falconeri *syn.* **Thamnocalamus Falconeri.**—We afford our readers an illustration (fig. 8) of a clump of Arundinaria Falconeri, about 20 feet high, growing in the gardens of J. J. Rashleigh, Esq., Menabilly, Cornwall. This species of Bamboo is tall and very beautiful, and in favoured spots in these islands it grows to a good height, but dwindles to 8 feet and less where frost cuts it down to the roots, and finally disappears. This appears to be Mr. Freeman-Mitford's experience in the Midlands. The culms are slender in proportion to their height, and both stems and foliage are of a brilliant green, and the internodes are covered with a white waxy bloom. The leaves are about 4 inches long, narrow, pointed with striæ on the upper surface, and inconspicuous transverse veins on the lower surface. The edges of the leaves are slightly serrated.

Linnean Society.—An evening meeting will be held on Thursday, January 19, 1899, at 8 p.m., when the following papers will be read:—I. "New Peridiniaceæ from the Atlantic," by Mr. G. R. Murray, F.R.S., F.L.S., and Miss F. G. Whitting. II. "On the Structure of Lepidostrobus," by Mr. Arthur J. Maslen. III. "Some Observations on the Caudal Diplospondyly of Sharks," by Dr. W. G. Ridewood, F.L.S.

Gardeners' Royal Benevolent Institution.—We remind our readers that the sixtieth Annual General Meeting and Election of Pensioners of this Institution will take place at "Simpson's," 101, Strand, London, on Thursday, January 19, at 3 p.m.; and that the usual annual friendly supper of members and friends will be held at the same place and on the same date at 6 p.m., when Mr. George Monro, of Covent Garden, member of the Committee of Management, will preside. Any friends who desire to be present, and have not intimated their desire to the Secretary, should do so on or before Monday, January 16, at the offices, 175, Victoria Street, London, S.W.

"The Rosarians' Year-Book."—One of the pleasantest annuals that "awakens, blossoms, ripens, and sleeps," till the time comes round for its successor to appear, is the *Rosarians' Year-Book*

(Bemrose & Sons, 23, Old Bailey). Twenty years have elapsed since first the little book appeared, so that the series constitutes a valuable historical document. The present issue opens with a good portrait and a biographical sketch of Mr. R. Harkness. The prowess of the Messrs. Harkness, father and sons, has been not a little remarkable, as evidenced by the record of Challenge Trophies, and other prizes secured by them since 1887. Whether at Bedale in Yorkshire, or in the Home Counties at Hitchin, success waits upon them; and it is clear this success is mainly due to the personal element. A cheery article is that of the Rev. A. Foster-Melliar, detailing his experiences as an exhibitor:—"I think," says Mr. Foster-Melliar, "I think when anyone has a really extra-fine and perfect bloom, something quite out of the common, that he really ought to have it photographed." We share that opinion; and we go further and say, that the possessor ought really to send a copy to the gardening journals, that the representation of a "standard or model flower may be set before the lieges." Is it heretical to suggest further, that some "shocking examples" should also be photographed, not for the encouragement of others, but to contribute to the history of the Rose? What opportunities for advancing knowledge are wantonly thrown away, as if the acquirement and diffusion of knowledge were not a much finer thing than the winning of a prize! No exhibitor will admit this, we are sure. Dr. Shackleton gives a list of Roses which he has found to succeed in the outer suburbs of London. Mr. Mawley, as usual, contributes a valuable paper on the relation of the climate of the Rose-year to the growth and quality of the Roses.

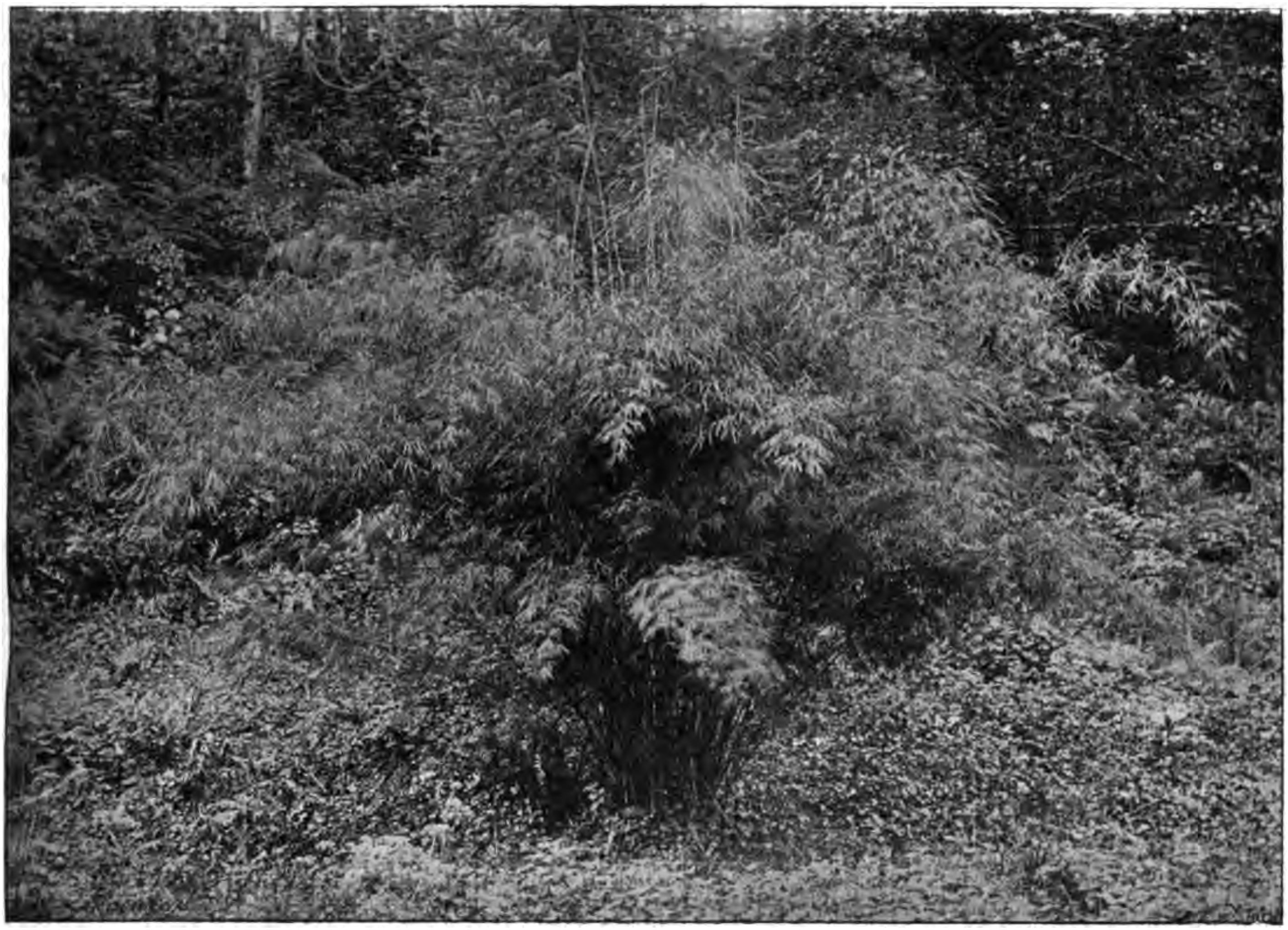


Fig. 8.—Arundinaria falconeri (height 15 feet), from the garden of J. J. Rashleigh, Esq., Menabilly. (See p. 24.)

The Rev. C. Wolley Dod.—The last volume of the *Garden* is dedicated to this gentleman, of whom an excellent portrait is given.

"Florilegium Haarlemense."—The last number of this publication, devoted to the illustration of the best and most widely-known bulbous plants, contains coloured figures of the following:—Hyacinth Mont Blanc, single white, whose history is not known. Tulips: 1, Joost van der Vondel, crimson; 2, Joost van der Vondel, white; of these single early Tulips the history is not recorded. Iris hispanica: 1, Blanche superbe, best white; 2, Chrysolora, light yellow; 3, Sappho, purplish, with yellow falls; 4, Coquette des blanches, soft lilac. The typical blue species grows wild in Spain; the yellow variety in Portugal.

Decease of H.H. the Maharaja of Darbhanga.—One of our Indian correspondents writes us as follows: "Doubtless many readers of the *Gardeners' Chronicle*, and especially those who have been in any way connected with India, will regret to hear of the death, which occurred on the 17th ult., of His Highness the Maharaja of Darbhanga. Maharaja Sir Lachmeswar Singh, Bahadur, was well known throughout the Indian Empire for his knowledge and benevolence. During the recent famine he did much to alleviate the suffering of the distressed, by providing relief works for the unemployed, and by giving additional pay to his numerous *employés* all through the famine period. He took a great interest in agriculture and horticulture. His famous garden at Durbungah contains a choice collection of plants, and an unrivalled collection of Mangoes and other fruit-trees."

The Botanical Magazine.—The plates issued for the present month include representations of the following plants:—

Acalypha hispida, Burmann, t. 7632.—This is the very remarkable and ornamental plant described in our columns in 1896 as A. Sanderi, which name we expect it will still bear in gardens. It appears that A. hispida has not until now been met with in a wild state, the plant figured and described in old books relating to Malayan botany being cultivated only. Messrs. Sander & Co. received their plants from the islands of the Bismarck Archipelago, where it was found by Micholitz. At present only the female plant is in cultivation, and its long, pendulous, crimson spikes are produced throughout the entire year. It is probable that when the male plant is introduced and pollination is effected, that the duration of the brilliant colour will be limited by the production of fruit and seed.

Lewisia Tweedyi, B. Robinson, t. 7633.—A remarkable Portulaccad from the mountains of Washington State, where it grows at an elevation of 6,000 to 7,000 feet. The plant is of tufted habit, with numerous stalked, ovate, oblong, somewhat fleshy, glabrous leaves, from the axils of which proceed flower-stalks exceeding the leaves in length, and each bearing one or two 8-petalled flowers, each about 3 inches in diameter, with the bell-shaped or spreading corolla of a pale yellow colour, passing into bright pink at the tips and margins. It flowered in the Alpine-house at the Royal Gardens.

Lilium rubellum, Baker, t. 7634.—This is the beautiful Lily introduced into commerce by Messrs. Wallace, of Colchester, and described by Mr. Baker in our columns—1898, p. 321, fig. 128.

Gaultheria trichophylla, Royle, t. 7635.—A pretty little rock-plant, native of W. China, and of the Himalayas. It is a low-growing evergreen shrub, with small ovate bristle-margined leaves, and small pink bell-shaped flowers. Introduced to Kew by the Hon. Charles Ellis, of Frensham Hall, Haslemere.

Meconopsis heterophylla, Bentham, t. 7636.—An ally of the Cambrian Poppy, Meconopsis cambrica, the sole European species, as the present plant is the sole American representative of a genus which has many species in the Himalaya mountains, and in Western China. M. heterophylla was originally discovered by Douglas in California. The leaves are deeply cut, and the flowers of an orange-red colour, with a purplish zone in the centre.

The San José Scale.—At the last meeting of the Berlin Horticultural Society, Professor Frank read a paper of great interest on the "San José Scale and its allies." Professor Frank said that zoologists have an idea that the Aspidiotus conchæformis, which is widely dispersed in Europe, is but a geographic form of the American Aspidiotus perniciosus. To decide this question, Professor Frank made a special journey last summer to those countries which have a similar climate to that of those American regions where the San José scale makes the greatest devastation, viz., to Tirol, especially to the valley of the river Etsch and Eisark, and also to South Baden. The result of these investigations was to establish the fact that there is not the slightest difference between the Aspidiotus conchæformis of Meran, Botzen, &c., and that of Eastern Prussia. So this is a true species, and different from the American one. Besides this, Professor Frank gave particulars respecting the reproduction of the scale-insect. He found that Aspidiotus conchæformis and ostreæformis have but one generation yearly, and that one female has a progeny of thirty-five to fifty descendants. American writers say that the San José scale has three generations yearly, and that each female breeds about 600 young scales. To examine into this remarkable difference, Professor Frank received at three different times, in the spring, at the end of June, and in the autumn, twigs of Peach directly from America, densely beset with the true San José scale. Investigation showed that on the twigs sent in spring there were numerous females and males, as also young chrysalids in different states of development. On the twigs in June the adult males were absolutely lacking, also the adult females, only young scales in great quantity were present. On the twigs in autumn there were again females and males, and young chrysalids. From this Professor Frank concludes that the San José scale has also but one generation yearly. Besides this, he investigated the females, and found, not 600, but about thirty ovules and young in them, a number which is in accordance with that found in the European scales. His decision, therefore, is that the American theory is an erroneous one. It is questionable whether the San José scale can live in Europe at all. *Dr. Udo Dammer, Grosse Lichterfelde.*

Roman Hyacinth.—Mr. G. H. Griffin, of the Seymour Nurseries, Anerley, kindly sends us a bulb of Roman Hyacinth with no fewer than eight spikes of bloom. The plant has been greatly admired, but we are not sure that this proliferous tendency is to be encouraged, inasmuch as the additional number of spikes is due to premature or precocious development of flower-stems, which should not have been produced till another year.

Stock-taking: December.—Month by month we have given the Board of Trade statistics concerning foreign and colonial trade, so far as it has been in the least connected with horticulture. To-day we have to record the fact that the imports for the month of December exceed those for the same period in the preceding year by £3,998,072—that is to say, whilst the total value of imports for the last month in 1897 was £41,334,536, those for the twelfth month of 1898 footed up £45,332,608—a most satisfactory increment resulting. The only articles noted in the decrease column are in animals, living, for food, = £54,940; dutiable articles of food and drink, = £256,483; chemicals, &c., = £22,456; miscellaneous articles, = £17,789. Against a decrease in Wheat and flour there is an increase in Barley of £341,589; Indian Corn went up by £339,027; fresh beef added to its value by £135,361; hams, £43,942; butter went up £60,863; Hops increased by £196,519; the value of sugar imported went up by £222,397; Cocoa increased £26,316; Tea gave way by £63,728; and Coffee, £104,099; the article of tobacco shows a gain of £54,499. The following figures are culled from the summary table:—

Imports.	1897.	1898.	Difference.
	£	£	£
Total value ...	41,334,536	45,332,608	+3,998,072
(A.) Articles of food and drink—duty free	14,337,976	15,981,811	+1,643,835
(B.) Articles of food & drink—dutiable	2,621,073	2,364,590	−256,483
Raw materials for textile manufactures	8,257,787	9,593,105	+1,335,318
Raw materials for sundry industries and manufactures	3,797,752	4,090,759	+293,007
(A.) Miscellaneous articles	1,593,153	1,575,364	−17,789
(B.) Parcel Post ...	59,257	77,885	+18,628

The figures respecting fruits, roots, and vegetables show the following very interesting results:—

Imports.	1897.	1898.	Difference.
Fruits, raw:—			
Apples ... ... bush.	410,954	642,278	+231,324
Grapes ... ... "	1,634	13,805	+11,671
Lemons ... ... "	139,129	223,484	+84,355
Oranges ... ... "	1,816,013	2,231,712	+415,699
Pears ... ... "	11,892	18,951	+7,059
Plums ... ... "	604	338	−266
Unenumerated... "	78,827	80,520	+1,693
Onions ... ... "	435,079	494,379	+59,300
Potatos ... ... cwt.	472,867	75,354	−397,513
Vegetables, raw, unenumerated .. ... value.	£73,021	£124,601	+£51,580

The reader will be glad to know that the imports for the year show a value of £470,604,198 against £451,028,960 for 1897; an increase amounting to £19,575,238.

The Exports

for the last month foot up at £20,978,408, against £19,320,156 for the corresponding period in 1897—an increase of £1,658,252. The items of decrease are of £31,810 in articles of food and drink; metals and articles manufactured therefrom except machinery, £199,941; and in chemicals, &c., £20,560. The largest increase is one of £610,814 in yarns and textile fabrics; machinery and mill-work went up by £601,253; raw materials figured for £381,386. Orders can now be sent speedily from Khartoum to Manchester and Birmingham—goods from these centres, we are informed, are beginning to ornament the inhabitants of what was a desert but a few months since. Influential journals in St. Petersburg and Moscow are busily lamenting now that caravans with British and British-Indian goods are driving all the Russian wares from the markets of Central Asia; and doubtless Indian and English products will soon show up in the Philippines. The figures for 1898 prove that we exported therein to the value of £233,390,792—against £234,219,708 in 1897; a falling off to the tune of £828,916. We did hope, and expressed the hope once or twice, that the close of the year would show an equalisation of values, but this has not been the case.

Winter Aconites.—Some surprise has been expressed at the non-appearance of this welcome little winter flower this year. Will some reader who takes note of the date of flowering of this species kindly tell us on what day they first noticed its appearance.

Lady Louisa Fortescue.—The death of this lady at an advanced age took place at Torquay on the 9th inst. Her estate at Dropmore, near Maidenhead is well known for its fine collection of Conifers. The estate, we believe, passes to the only surviving son.

A Strike of Nursery Employés.—On Monday morning the *employés* of Messrs. Palmer & Co., Ltd., nurserymen, Annan, came out on strike for an advance of wages. The men were being paid 15s. per week, working ten hours per day in the summer, and eight in the winter, and they requested to be paid in future at the rate of 4*d*. per hour. At an interview with the employers on Monday morning an offer of 1*s*. per week rise was made; but this was refused, and the men remained idle all day. At night another interview took place, when an offer of 2*s*. rise was made provisionally, pending a meeting of the directors to be held this week. The men accepted the offer and resumed work next morning.

Interesting to Amateur Gardeners.—A unique law case was contested last month in South Australia. The plaintiff is an amateur gardener residing in Adelaide, and had planted a row of Pepper-trees (Schinus Molle) about 18 inches from the fence. As the trees grew, the owner trimmed the branches on one side, while his neighbour, the defendant, attended to the other. The roots of the Pepper-trees advanced as far as 60 feet into the defendant's nursery garden, and naturally proved troublesome by taking away plant-food from his trees and shrubs. A trench was dug along the fence, a quantity of coarse salt emptied in and filled up again, with the result that a number of the trees were killed. The owner sued for damage to his trees, and the defendant put in a counter-claim for damage of shrubs in his garden and nursery. The Chief Justice, before whom the case was tried, visited the spot and made careful examinations in the presence of lawyers and experts. and after expressing surprise that no case of the kind had ever arisen before in England or Australia, advised the parties to come together, his opinion being to the effect that—1. A man has a perfect right to plant trees close to his boundary, but if the limbs overhang the neighbour's property, the neighbour can cut off the overhanging part, or give the owner notice to do so. If he cuts off the branches, he must, if required, throw them into the owner's property. He has no right to them. 2. The same rule applies to the roots. The neighbour may dig a trench and cut the roots on his boundary, or he may call on the owner to prevent them from trespassing into his property; and if the roots are allowed to trespass, he can claim damages if any is done. But he must not apply any foreign substance to the soil, even in his own property, which will spread into the owner's land, or will be carried by the sap into the trees and so damage or kill them. The case thus resolved itself into this: The plaintiff was entitled to damages for the destruction of his trees. The defendant was entitled to damages to the amount of the loss he had sustained from trespass of the roots of the plaintiff's trees, and should the latter continue to allow the roots of his trees to trespass, the defendant could recover further damages. The parties conferred, and decided to stop proceedings, bear their own losses, and pay their own costs, and the plaintiff promised to remove the Pepper-trees.

IMPORTATION OF PLANTS INTO BULGARIA.—The importation of living plants, with the exception of Vines, is allowed from all districts and countries not infested with Phylloxera; still, the sanction of the Bulgarian Minister of Trade and Agriculture must first be obtained. The imports may enter only at the customs towns and ports of Tsaribrod, Sofia, Harmanly, Varna, Burgas and Rustchuk, and they must be accompanied in all cases with a statement from the country of origin that Phylloxera is not present. Such statement is also required with imported fruits and vegetables. The importation of Potatos and Onions, as well as all parts of Vines, is forbidden, whilst the through transit of these goods, if the permission of the Minister be obtained in advance, is allowed. All plants, with the exception of those in flower-pots, must be freed from the soil, and be bound in linen and packed in chests or baskets.

COLONIAL PUBLICATIONS.—We have received the following publications:—*Agricultural Gazette of New South Wales*, October, 1898, with articles on Indigenous Vegetable Drugs, J. H. Maiden; Chat about Wattles, J. H. Maiden; Insect and Fungus Diseases of Fruit-trees, and their Treatment, Messrs. Allen, Blunno, Froggatt & Guthrie; Orchard Notes, &c. — *Queensland Agricultural Journal*, November, 1898, with papers on Disease in Pine-apple Plants, G. F. Gerler; Contributions to the Flora of Queensland, and Plants reputed poisonous to Stock, by F. M. Bailey.—*Nova Scotia Provincial Government Crop Report*, November, 1898. The crops were favourable as regards hay and Wheat, in spite of heavy summer rains. The Potato harvest was poor, but the prices obtained were poor.—*Agricultural Resources of Nova Scotia*. B. W. Chipman. A valuable pamphlet, speaking briefly of the geographical conditions and climate of the colony, and of the value of its various districts for Wheat, hay, and fruit-culture. The necessary hint is conveyed that Nova Scotia is no ground for the pioneer, but is in a highly advanced state as regards civilisation, education, and customs generally.

PUBLICATIONS RECEIVED.—*Journal of the Board of Agriculture*, December, 1898. Contains papers relating to Grain harvest of 1898; Thinning of woods, J. Nisbet; English orchards; Consumption of Potatos in the United Kingdom, and allied subjects.—*Fruit Preservation* (Technical Education Committee, Kent County Council). An important "interim report," by Mr. W. P. Wright, upon experiments on the cold storage of fruit, conducted at the works of Messrs. J. & E. Hall, Dartford. — *Sonderabdruck aus Zeitschrift für Pflanzenkrankheiten*, Prof. Dr. Paul Sorauer.—*Botanisches Centralblatt*, No. 52, and the Index.—*Annales Agronomiques*, December 25, 1898.—*Revue de l'Horticulture Belge*, Jan. 1, 1899.

PLANT PORTRAITS.

BEAUMONTIA PURPUREA, Lindley, *Revue de l'Horticulture Belge*, January.

BESSERA ELEGANS, *Revue de l'Horticulture Belge*, January 1.

CATTLEYA LABIATA, new form, *Wiener Illustrierte Garten Zeitung*, t. 4, a form in which the segments are marked with white spots.

FUCHSIA, MONARCH, *Garden*, December 31.

INCARVILLEA GRANDIFLORA, *Revue Horticole*, January 1.

MILLA BIFLORA, *Revue de l'Horticulture Belge*, January 1.

NERINE UNDULATA, *Revue de l'Horticulture Belge*, January 1.

PÆONIES: MARGARET ATTWOOD, white; THE MIKADO, crimson. *Garden*, January 7.

HOME CORRESPONDENCE.

A WORD ABOUT MUSHROOMS.—Parts of our park have been down more than a hundred years, and not a Mushroom was to be found on it last autumn; another part was laid down about forty years ago, this portion produced a few, but other portions that were laid down ten years since, were white with them. The whole of the park is cut for hay and then fed by cows. One would have thought the older parts would produce most Mushrooms, but such does not appear to be the case. About two years ago I procured some spawn from a good firm of seedsmen, and put it over a little meadow in lumps, about a yard apart. I raised the turf about 2 inches deep to insert the spawn, and afterwards made it firm by treading. Not a Mushroom has appeared since. Can our Mushroom-experts explain these matters? *N. Kneller, Malshanger.*

OUT-OF-DOORS MUSHROOMS.—It may interest your readers to know that I have picked two good dishes of Mushrooms in the park at Newnham House this month, viz., on Thursday, the 5th inst., and to-day, the 9th, and have every prospect of another good dish in a few days, if the mild weather continues. I also picked several during December. *M. F., Newnham House, Wallingford.*

DECORATING FRUIT AND POINT-JUDGING.—I have been watching with interest the expressions of opinion on point-judging at the great Grape prize at Shrewsbury, &c., which have appeared in the *Gardeners' Chronicle*. Everyone who knows the energetic committee of that show may rest assured that they will appoint such men as judges who are capable of apportioning the points in the case of every bunch of Grapes adjudged; and I fear that the finest and best collection of Grapes will only be awarded a 2nd or 3rd place. I am not in favour of decorating a collection of Grapes or any other fruit, and the points allowed in the schedule for such decorations are not considered to be just by gardeners, and I fear that it will come to be a disputed and a vexed question, as these decorative articles may not be the property of, or may not have been grown by the exhibitor. What a disappointment it will be to a hard-working gardener who, after giving unremitting attention to his Vines for a period of twelve months, to find that his collection has lost the coveted grand prize by a few points in the matter of decoration. There is nothing to hinder an exhibitor, if he so chooses, employing a trained florist, male or female, in the decoration of his Grapes; how unfair, however, to the "practical," who despises such meretricious aids! This fashion of decorating a dessert-table may be new to the public, but I hope it will soon die a natural death. If decoration is to be continued, let it be done by the Society; or let a prize for decoration be given independently of that given to the fruit, or if done by the exhibitor let all plants, flowers, &c., be grown by him, the same as his fruit. *A. Kirk, Norwood Gardens, Alloa, N.B.*

LARGER EXHIBITS REQUIRED AT OUR FLOWER-SHOWS.—As an exhibitor of several years experience, I cannot agree with the suggestions of your correspondent "A. J. L., Wyfold Court," in the largely increased numbers constituting a dish of fruits or vegetables. Fifty pods of Beans or Peas would represent as much ability in their production as would twice the number, and the danger of such an extension furnishes ground for a decrease rather than an increase, either of quality or effective arrangement. Instead of advocating 1½ dozen, where dozens are now common, I would rather reduce the number to six, a provision that would not only ensure a greater, because more uniform effect, but an increased number of exhibitors. Three Cauliflowers, Celery, or Cabbages, make a neater exhibit than four or six, and are much more easily arranged. In the case of cooking Apples, I consider five fruits ample for a dish, nine or twelve are both awkward to arrange, and seldom look neat after they are staged. Six fruits each of Peaches, Apricots, Nectarines, Pears, and dessert Apples are quite enough, and a dozen Figs or Plums are ample. The compensation to the exhibitor in a proportioned increase of prize value is not likely to be taken serious account of by societies, the tendency more often being in the opposite direction. *W. S.*

CHRYSANTHEMUMS AS BUSH PLANTS.—Trade catalogues contain lists of decorative varieties of Chrysanthemums, but these only go to prove the little interest taken by the trade in catering for the wants of those who cultivate Chrysanthemums exclusively for home decoration. We are not satisfied to grow varieties whose only merit is that they produce a quantity of small flowers. The flowers will of necessity be less in size than show blooms, but we have no doubt as to where they appear to best advantage, e.g., on our bush plants. It is a matter of surprise that no large trade grower looks after the hundreds of fine varieties which, after a brief existence, are discarded, because they have failed under the "big-bloom" system to produce flowers according to the mop-head standard. Many such discarded sorts had they been allowed to grow more naturally would have produced six or eight fine flowers per plant, without "coarseness." Under the rational system we should hear less than we do about "coarse" blooms. With the object of assisting others who may be placed similarly to myself, I give a list of varieties which have been fully tested, and found to answer well under the bush-system of culture. It will be noted that a few well-known sorts are left out, such as Edith Tabor, the Viviand Morel family, Pallanza, Australian Gold, Colonel Smith, Pride of Madford, Madame Ad. Chatin, &c. These have not, for various reasons, been found to answer when grown as bush plants.

Mutual Friend
Emily Silsbury
Elsie Teichmann
Phœbus
Mons. Pankoucke
Clinton Chalfont
Source d'Or
Golden Gate
E. G. Hill
L. Canning
Niveum
Soleil d'Octobre
Modestum
Western King
Princess Victoria
Ivory
Mrs. J. Lewis
Simplicity
Mars
Oceana
Major Bonaffon
Cecil Wray
Miss Mary Godfrey
Boule d'Or (Calvat's)
Bonnie Dundee
Tuxedo
King of Plumes
Pride of Ryecroft
Mrs. H. Weeks
W. H. Lincoln
Duchess of York
Le Rhone
Khama
W. J. Newitt
C. W. Richardson
Duchess of Wellington
Reine d'Angleterre
H. W. Rieman
Madame Rozain
Mrs. S. C. Probin
Thomas Wilkins

The new variety, R. Hooper Pearson, will, I believe, prove to be a most useful one for bush-culture. *A. Edwards.*

GRAPE JUDGING. — If your correspondent "Ayrshire Lad" will apply to the Royal Horticultural Society, 117, Victoria Street, Westminster, for a copy of the new code of judging rules—I think the price is small—he will find in it that Grapes in relation to their respective varietal exhibition values are dealt with. But the method adopted is simpler than is the more elaborate arrangement proposed by Mr. Ward recently. The Royal Horticultural Society's code simply places Muscat of Alexandria as the very best flavoured of all exhibition Grapes, one point maximum above all the rest, these being equal. Of course, in judging, the judges can, even with fixed maximums, vary the points both according to appearance and known quality, so that no matter what maximums may be, they really indicate relative merit of variety when first-rate, and they also indicate points beyond which, in making awards, the judges cannot go. What "Ayrshire Lad" asks for in the way of exposing publicly the judges' points in each case, is done at Shrewsbury fully, and it is there found to have great educational value. It has been too long subject for complaint that at shows, the grounds on which in important classes Awards are based, have not been published, and therefore have left both the competitors and public sometimes bewildered. It would involve no more trouble in pointing an important class for the judges to enter their point Awards on a card than in their note-books. Of course, all these great competitions so much depend on the capacity of the men engaged in making the Awards. Still further, it has often occurred to me that at great shows, to secure something like consistent judging, the judges should be invited to confer with each other beforehand, and settle satisfactorily their respective bases of judging similar exhibits. *A. D.*

ACALYPHA HISPIDA (SANDERIANA).—The persistency with which Acalypha hispida produces its long, cord-like inflorescences is one of the prime features of this extraordinary plant. I have just seen the group of plants Mr. J. Hudson exhibited at a meeting of the Royal Horticultural Society some weeks ago; a number of plants, and, excepting that some of the handsome drooping spikes are losing their freshness, none has been removed, and as the plants grow taller they produce fresh flower-spikes from every leaf-axil. It would thus appear that so long as the plant is kept in a growing state so long will the inflorescences be produced. Mr. Hudson speaks very highly of it as a house-plant;

he says that some of his plants were kept for nine days in the town house of Mr. Leopold de Rothschild in Hamilton Place, and when returned to him they did not appear to have suffered in any appreciable degree. Mr. Hudson's intention is to convert some of his strongest plants into standards. With this object in view, he will shortly behead some of them, give them a brief rest, and then start them into growth, so as to form branching heads. The capacities of the plant to stand this has, of course, to be proved, but it would appear there is ground to hope it will be abundantly realised. Mr. Hudson states, in reference to its cultivation, that it requires the warmth of a stove, seeing that it comes from the coast of New Guinea. He finds that a minimum night temperature of from 50° to 60°, and a day temperature of from 65° to 70° in winter, with a summer temperature of from 10° to 15° higher, suits it well. The plant requires plenty of light to develop its colour, with a light shading in summer. The plants at Gunnersbury House are in a low span-roofed house, and they are near the glass, where they obtain an abundance of sunshine, which appears to be necessary to its well-being. The plants should not be syringed overhead, otherwise the inflorescences become both disfigured and damaged. It is good practice to sponge the leaves occasionally to remove dust and insects, the under being sponged as well as the upper side. A suitable compost is one made up chiefly of turfy loam, with leaf-soil and sand, adding some peat if the loam is very heavy. The plant should not be over-potted, and when established it should be afforded plenty of water. As it appears to be a plant that roots freely, a stimulus in the form of a fertiliser is found of advantage, and Clay's Manure is in use at Gunnersbury House. Propagation is by means of cuttings and of "eyes." So far it does not appear to have produced seeds in this country, nor have its capabilities to form seeds been determined. [The male plant has not yet been introduced]. Mr. Hudson recommends the plant as a suitable one for filling vases in the decoration of rooms, and then only such plants as are well established. When used in rooms it should be placed so that light papers may form a background, and then by reason of its colour it shows up to advantage. *R. D.*

CLEANING TOMATO - SEED.—The method of cleaning Tomato-seed practised by "E. J." (see last volume of *Gardeners' Chronicle*, p. 444) seems rather a tedious process. A much quicker way, and one that I have practised for a number of years, and find to answer well, is to cut the fruit in half horizontally, squeeze out the seed with as little pulp as possible, or with some varieties pick it out with a knife-point or a pointed stick. The whole should then be put in a muslin bag, and the latter twisted up so as to get the contents into as small a space as possible. It must now be well rubbed between the fingers and thumb under water until the seed is well separated from the surrounding pulp. Much of the latter will be squeezed through the muslin during this process, and what remains may be easily removed by washing in water. The seed will then be quite clean. If "E. J." will give this method a trial, I think he will find it a quicker as well as a cleaner way than the one he follows. I described this method of cleaning Tomato-seed in the *Gardeners' Chronicle* of Oct. 17, 1887. This was my first venture of writing to this paper. Two correspondents criticised my article. "A. D." said it would, in the case of a quantity of fruits, prove rather tedious and worrying. No doubt "A. D." was quite right. I was writing only for those who, like myself, might wish to save a little seed for their own use. At the time I had a great desire to know who this writer was. This desire was gratified three or four years ago at the Shrewsbury show, where I was staying at the same hotel as this well-known writer, and was pleased to find that he remembered replying to my note. The other correspondent was Mr. S. Castle, then of West Lynn, who disapproved of washing Tomato-seed in water, and said: "I venture to say my Tomato-seed, some of which is several years old, has more germinating power than this season's washed seed." This sentence is followed by a note of interrogation. Further on he writes: "I should be sorry to clean any Tomato-seed by the water plan; in fact, I can see no need of it, the seed saved by me being white or light brown, and good." In reply, I asked Mr. Castle if he would kindly say what injurious effect the water had upon the seed, and if the same rule held good with the washing of Melon and Cucumber-seed? As far as I remember, he did not reply. I do not think washing has any injurious effect upon seed. If any reader of the *Gardeners' Chronicle* thinks or knows differently, perhaps he will kindly record his experience. *J. S. Upex, Wigganthorpe Garden, York.*

SULPHURING OF VINES.—The following is the method that I have seen used by others, and have used in our vineries without injury being done to the Vines. By its use red-spider and mildew are checked. Having a small glass lamp, nearly fill it with methylated spirit; put a stand over the lamp, and get a tin (a small cake-tin would do), taking care that it should be large enough, so that the sulphur does not boil over, and put a 60-potful of sulphur into it, being careful not to spill any, and feeding it twice with a tablespoonful of sulphur at an interval of twenty minutes. Put one lamp and tin to every 8 feet run of glass. Have a wet sack ready in case of accident, so as to throw over the sulphur should it boil over or catch in any way. The best time to do the sulphuring is late in the evening if the sun is powerful, and air should be put on early in the morning before the sun has any power. *B. E.*

MANURE AND PLANT ASH.—Your correspondent, "Mr. G. W. Allen," in your issue of the 7th inst., rather misapprehends the bearing of my lecture at the Royal Horticultural Society. Briefly, the argument was, that we know we must manure with nitrogen, phosphoric acid, and potash, but that the composition of the ash of the plant gives us no guide as to the proportions to be employed. For agricultural crops this fact has been established by the experiments at Rothamsted and other stations; and Mr. Allen will find a few experiments illustrating the point in a note of mine that appeared in the *Gardeners' Chronicle* of May 28, 1898. *A. D. Hall, South Eastern Agricultural College, Wye.*

EUCALYPTUS GLOBULUS IN THE OPEN AIR.—It may interest your correspondent, A. R. Pearse, to learn that a plant of Eucalyptus globulus, planted in a garden in the south-west part of the county of Cork, out of a small pot in 1880, was at the end of 1893 killed to the ground by 18° of frost. When killed it was 61 feet high. This frost was the hardest registered during the thirteen years the tree had been planted. It was in the summer of 1893 a very fine sight, covered as it was with beautiful yellow flowers. Does "A. R. P." know if it commonly flowers in this country? *J. A., Panshanger.*

NOTES FOR NOVICES.—I.

LET not the student-gardener for whom this note is to be written imagine that we are going to teach him practical gardening. That can only be learnt by experience. Experience is valuable to one man because he knows how to appreciate it, and to turn it to account; it is unprofitable to another, because he works with his hands only, and cannot or does not let his hands be controlled by his brains.

On turning to p. 7 of our last issue, some directions for digging may be read from the pen of a practical gardener of long experience. Messrs. Cannell's catalogue, now before us, also points out that there is digging and digging, and shows by means of a woodcut which is the right, which the wrong, way of carrying out this most important operation. One half-hour spent in watching the practice of an expert spadesman will, however, teach more than all the columns of a gardening paper. Besides, there is stiff land and light land, dry land and that which is water-logged, peat-land and that which contains more pebbles than soil. Again, digging as a preparation for planting fruit-trees, or for the benefit of kitchen-garden crops, is one thing; digging in a shrubbery or in the herbaceous border is quite another matter. It may almost be said that the more you do in the one case the better, the less you do in the other the less likely you are to incur the wrath of the proprietor. No book and no garden calendar can tell you exactly what you ought to do under the special circumstances in which you happen to be placed. Such publications can only deal with generalities, and you must use your brains so as to be able to adapt the general directions to your special case.

Whilst there is all this diversity in practical matters, according to varying conditions of the soil and subsoil, and in reference to the object in view, the underlying principles are the same in all cases. To get at and to understand these principles, ask yourself why you are intending to undergo this muscular exercise? It is, no doubt, a splendid thing for a young man, but he might, perhaps, prefer football or cricket. These might be equally advantageous to him as a man. But in these forms of athleticism, the gratification is mainly selfish. When a man digs he is, or should be, animated by the fact that he is doing good to others as well as to himself. First and foremost he is doing good to the plants he is about to grow—that is the primary reason why he doffs his coat, thrusts in his spade, and neatly turns the sod. By helping the plant he realises his ulterior aim of benefiting his fellow man.

We dig, then, in order to promote the welfare of the plant, and more particularly of its roots. Those roots, generally speaking, have relatively thick bodies and branches, and a crowd of fine thread-like branchlets. Neither the body of the root, nor its branches, nor even its fine threads, have any *direct* influence on the feeding of the plant. The feeding surface is confined to the vicinity of the extreme tips of the finest threads, and to the very minute root-hairs which clothe some roots under propitious circumstances. One fibril or one root-tip does very little towards supplying the wants of the plant, but the work of the whole suffices with other agencies to send up the water to the highest leaves. Botanists teach us, moreover, that this minute root-tip is one of the most wonderful things in Nature. It not only absorbs water and air, but it is sensitive to touch, has some of the properties of a nerve, and during growth is endowed with a faculty of twisting round and round, screwing itself into favourable positions, of avoiding those that are not so, and of circumventing obstacles. Truly, we ought to feel respect for the root-tips; but how many give them a thought when digging? If the soil is not broken up, how can these tiny threads penetrate among and between the particles of the soil? The root-thread, then, thus requires unrestricted room to move in and to spread itself where food may be found, and digging affords this space.

Again, free access of water is essential; that cannot be ensured unless the soil is broken up. Another essential is air; the roots, like other parts of the plant, breathe. The process is, in essence, the same as in human beings, and in all living creatures. If you prevent the access of air (oxygen) to the root, or if you do not provide, as you do by digging, for the free entry of air, you suffocate the root, and the plant dies. Stagnant water in the soil causes ill-health or death, simply because it does not allow of the free access of air to the root. The water by itself is not injurious if it be kept in motion, the air moves with it, and the soil is kept fresh and sweet. In seasons such as we have had lately, the plants on well-tilled land suffered much less from the drought than those on hard-baked consolidated soil. The water from the subsoil was enabled to rise in the minute interstices of the friable soil, and contribute to the wants of the plant, its motions were checked and impeded in the impervious soil.

Digging secures a warmer temperature in the soil; that is proved by experience. Then the action of those extremely minute plant-cells called microbes, or bacteria, in the soil, must not be forgotten. The ordinary gardener has little or no chance of actually seeing them; he must rely on his text-books for the requisite information. Some are harmless, others harmful, and some of advantage by converting the inert and otherwise useless portions of the soil into soluble food in a state in which it can be utilised or digested by the plant. To understand these matters thoroughly, one must be a physiologist and a chemist. Being only practical gardeners, we must content ourselves for the present with knowing that not the least important reason for digging is to secure and promote the beneficent action of exiguous bacteria! More, and much more, might be said here, but is it not written in the text-books? Suffice it for us now to set up a finger-post. *S. Retsam.*

EMIGRATION.

The information contained in the latest circular issued from the Emigrants' Information Office, 31, Broadway, Westminster, S.W., indicates briefly those colonies or districts in which there are openings for emigrants. For example, it is stated that it is too early in the year to emigrate to Canada. In New South Wales, matters relating to trade, labour, and industry are improving, and land settlement is increasing. The dairy industry is largely on the increase, and many new factories are being erected. The number of unemployed throughout the colony has become much less; scrub-cutting at the West Bogan is almost the only Government work now being carried on for the benefit of those out of employment, the average wages there being 5*s.* 6*d.* a day. But the effect of the long drought, and of serious disputes between capital and labour, have made employment in many cases precarious. The building trade remains depressed, and there is a large number of empty houses in Sydney and the suburbs. At the large Broken Hill silver mines there are sufficient miners, and mechanics can always be obtained from Adelaide when required. At the Cobar copper mines there has been plenty of work for miners. In many parts the saw-mills have been very busy. In the metal trades at Sydney, there is no demand for any kind of mechanic; in the furniture, clothing, boot-making, printing, and other trades, and in the woollen-mills, there is no demand. The large coal industry at Newcastle has been busy, and miners have been working full time; but as the weighing question is still undecided, the industry is in a very unsettled condition. In Victoria, farmers would do well; and a skilled mechanic, who lands with sufficient money to provide for himself and family during the first few weeks, would have a reasonable prospect of finding remunerative employment, especially in country districts. A few more plumbers and glaziers—if duly qualified—would find employment on the drainage works which are now being carried out at Melbourne. There is an opening for a few experienced miners at Carisbrook and Bendigo; but for ordinary labourers employment continues to be scarce.

In South Australia a Government labour Bureau has just been established for the purpose of facilitating the obtaining of employment. The Bureau is situated in Victoria Square, Adelaide, and branches may be established elsewhere; a register is to be kept of all persons applying for employment, but no one can be registered unless he has resided for one year in the colony; a register of employers applying for labour is also to be kept. No labour is to be employed in the public service except through the Bureau.

In Queensland, notwithstanding the late severe drought, which caused great losses in the western and central districts, settlement on grazing-farms by practical men is steadily progressing, especially in the west and north-west. There is a general demand throughout the colony for ploughmen and other farm-labourers, and for female domestic servants, but not for mechanics, except for a few tailors at Brisbane. A sum of £22,500 is proposed to be spent during the financial year in promoting immigration; of this amount, £15,000 will be used for reducing the cost of immigrants' passages. The Report of the Queensland Government Labour Bureau for 1897, which has just been issued, does not point to any very satisfactory results; but, on the whole, the tendency of the labour-market was towards improvement. There was more demand at Ipswich, Mackay, Rockhampton, and Toowoomba, than at Brisbane, Bundaberg, or Townsville. Increased settlement and the improved position of settlers have had this year a stimulating effect upon the manufacturing industries of the colony, and the outlook is good. Gold-miners are doing well, and considerable attention is again being directed to the long-neglected copper-mining industry.

In Western Australia there is a good demand for farm-labourers in many parts of the south-west, and for miners on some of the gold-fields, but not at Coolgardie. A considerable number of public works are being carried out in all parts of the colony, but as many of these are nearly completed, the Government will during the next few months gradually discharge some 200 of the *employés* in the Public Works Department. The free-passages hitherto given to female domestic servants going to Western Australia are suspended for the present. In Tasmania, the demand for most kinds of ordinary labour (except compositors) is increasing there as the mines develop, and men able to take up and work a few acres of land will get a good price for vegetables. In other parts of the colony there is no general demand for more mechanics or farm-labourers. In New Zealand, in the district of Auckland, the building and saw-mill trades have been very busy. In other parts of the colony also, except at Wellington, men in the building trades have been fully employed; engineering trades have also been busy, except at Auckland and Oamaru. Ordinary labourers find plenty of work in country districts at this season of the year; but they must avoid large towns like Auckland, Wellington, Christchurch, Timaru, and Dunedin, where many hands have been unable to find employment. There is an excellent demand for female servants.

In Cape Colony and Natal there is very little demand for mechanics or labourers at the present time; and emigrants are warned to avoid Beira in Portuguese East Africa.

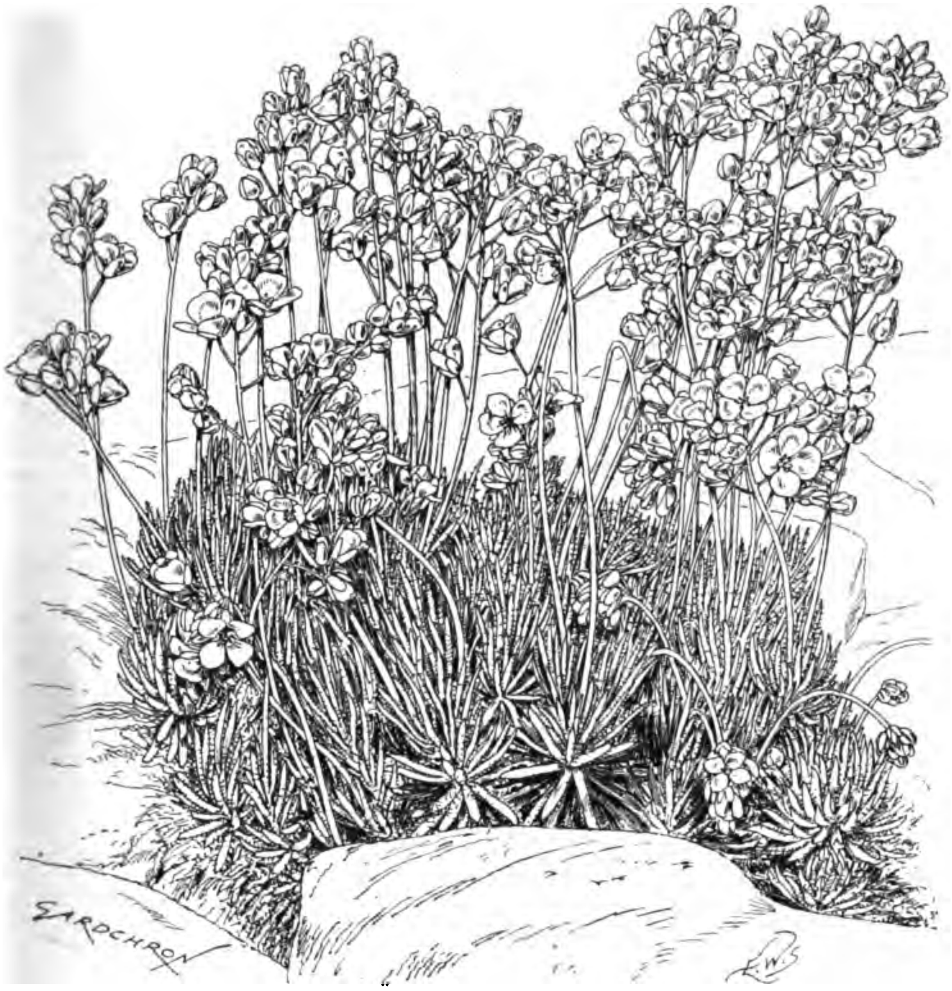


Fig. 9.—Draba olympica heterocoma (natural size).

DRABA OLYMPICA VAR. HETEROCOMA.

This is a pretty little Draba of tufted habit, with linear, erect, glabrous leaves, and spikes of golden-yellow flowers. It is a native of Anatolia, and other parts of the Levant. Our illustration (fig. 9), for which we are indebted to Mr. Siehe, of Mersina, shows a plant as growing under natural conditions. The plant is fully described in Boissier's *Flora Orientalis*, vol. i. (1867), p. 295.

MARKET GARDENING IN THE CHANNEL ISLES.

(Continued from vol. xxiv., p. 454.)

The Nurseries of Mr. A. J. Guilbert, at Rohais Road, Guernsey, are of a much more varied character than the market establishments already mentioned, for not only are Tomatos and Grapes grown for sale at home and for export, but there is a general collection of plants indoors and outside, beside an immense stock of early spring-flowering bulbs, such as Iris, Freesias, and Narcissus. Acre after acre is planted with these bulbs, and houses and pits are filled with boxes in which the Freesias are planted. And by no means is this a solitary instance, for bulb-culture, if not taking the place of some of the staple goods, is nevertheless becoming a large adjunct to the regular work at most of the nurseries. At Rohais, almost the first plant to arrest attention is a splendid specimen of Arundinaria gracilis, 12 feet in height and 15 feet through. Hedychium Gardnerianum is in robust health; to see this treated as a hardy plant was a novel experience. Close by are the yellow Marguerites in regular bushes, 8 feet high, and as much through. These remain out all the year, and are constantly in flower. Chamærops excelsa and C. Fortunei are represented by plants 8 and 10 feet in height.

Continuing our walk through the grounds, we notice a broad finely-kept walk through the nursery. On one side of this are herbaceous plants, backed with choice shrubs, and on the other Begonias, Carnations, and bedding plants. Among other trees outside were large Camellias, 30 feet through, and almost as much in height. The old Double White and Marchioness of Exeter are represented by such specimens. Close by is a tree of Magnolia Fraseri, 30 feet high, and bushy withal. The Cork-tree is represented by large specimens, whilst Bamboos, Dracænas, and Phormium seem to vie with one another to cover the space allotted them in the shortest space of time. We notice Benthamia fragifera in the best of conditions, choice greenhouse and Himalayan Rhododendrons, and so on until we approach a dell at the lower part of the grounds, through which a stream of water is constantly running. We have had the pleasure of inspecting some large winter gardens, but this nook, so natural and free, without any protection whatever, charmed us immediately. Along the stream were masses of Gunnera scabra, with leaves 4 feet across, bearing large cone-like clusters of flowers; Phormium tenax and P. t. variegata; Bamboos in some twenty species and varieties; Palms, Camellias, Dracæna indivisa; Acanthus mollis, with Osmunda regalis, Woodwardia radicans, Cyrtomium falcatum, and Cyperus alternifolius. Pittosporum Ralphi, Datura sanguinea and D. aurea, now full of flowers. Bouvardia odoratissima, some of which are 8 and 10 feet high. Aralia Sieboldi, Ligustrum chinense, with beds of various sorts of Montbretias, full of flowers. Passing by a Camellia-hedge we come to a large field, where all the best Chrysanthemums are grown by thousands.

Of Anemone fulgens, we noticed large beds just beginning to appear above the ground; the St. Brigid and other forms are also largely grown. English, Spanish, and choice German Iris, in large quantities; of the two former types, the number of bulbs run into six figures in a season. The white Agapanthus is also here in large masses. Roses and Carnations are represented by quantities of the best sorts.

Indoor Plants, &c.

The houses are numerous, and the inmates included double-flowered Begonias, large and bright; Asparagus decumbens, grown in quantity; Cannas of unusual size and brightness. The choice varieties of Canna grow on these islands to a great size; the flowers, which are freely produced, are very large, and of intense and vivid colours. Here also are Ferns of sorts, and Palms for decoration; while overhead is a wonderful plant of Stephanotis floribunda, clean and vigorous, from which no fewer than 6000 trusses of bloom had been cut this year. A vinery close by, 70 feet by 36 feet, contained a fine crop of Black Alicante Grapes, and along the centre path a good portion of space was devoted to planted-out Freesias; the pure white F. refracta alba only is grown, and the stock is always kept pure. In another house, Cypripedium insigne is represented by a large number of plants; these are potted in loam, leaf-soil, and sand—in fact, in soil just suited to a Fuchsia. Asparagus plumosus and A. p. nanus are grown in large quantity, mostly in 8-inch pots—splendid plants they are. These are raised from seed, and quickly pricked out and grown on. Large specimens are kept, which flower and seed freely, so there is no fear of the stock diminishing; a houseful of pot-Vines, chiefly Muscats, were ready for removal outside. A house of Melons, 40 feet long and 8 feet wide, with a narrow border each side, had 200 splendid fruits of the old Guernsey A 1—a form Mr. Guilbert finds most useful and profitable. A Tomato-house, 200 feet by 30, span-roof, with twelve plants in rows from path to wall. and spaces 3 feet wide, was filled with a grand lot of plants and fruit, the variety being The Cropper. It is a splendid cropper, and has large, round, regular fruit, produced in good clusters. Heaps of Daffodils were piled up on the borders inside, to be sorted and then planted. There is a vinery 100 ft. long, in which the Vines were planted six years ago, and have been grown on the extension system. A long rod has been carried along the front wall, and from this numerous canes have been carried up to the top. Peaches are grown in a span-roof house, and the trees are clean, stout, and vigorous.

My attention was first drawn to 15, Pollett Street, the shop in the town where Mr. Guilbert disposes of so much of his goods, by seeing in the window a dish of Lady Palmerston Peaches, several of which were weighed in my presence, and reached 16 oz. Some fruits of this variety had been exhibited, weighed no less than 21 oz. Passing through the nursery I could not help remarking on the number of squares of glass covered with Tomato seed. On enquiry I was informed that, if a given quantity was saved in good condition, a promise had been made that the men should have another day's outing.

(To be continued.)

CLOVER AND GRASS SEEDS.

We learn from Messrs. Hurst & Son's recently-issued circular that of English Red Clover and Cow-grass a very large acreage was left for seed in almost all the producing counties, but the exceedingly warm and bright weather of the late summer shrivelled a considerable proportion of the stems on the light and warm lands, preventing the development of the seed-heads, and therefore those crops saved early in September will, we think, prove light in yield. The seed that was saved later on the colder and heavier lands will show the best quality and largest yields. Taking the crop as a whole, we should say it will be barely up to an average one. Samples will vary very much, the great bulk of the seed will be small, bright-coloured, and weedy. Fine large-grained purple seed with the true English character will be scarce. There is still a large quantity of yearling seed held over, which will have to come on to the markets. We may add that up to the present date fewer parcels of new seed have been brought to market than we ever remember. Single cut Cow-grass is in very short supply; as this is always saved early, our remarks above apply in full force here.

Foreign Red Clover: America, the country we always look to for the largest output of seed, has considerably below an average, but the enormous quantity of 1897 crop still held over more than counterbalances any deficiency. France has some fine seed, but as her crop is not up to an average, she will not be able to send us the large quantities she did last year. From some parts of Germany we have rather free offerings of large-grained, fine-coloured and clean seeds, but prices asked at present are rather high. The Russian crop is reported small, and it is thought she will have to import.

White Clover: A large English crop, but of bad colour, and unusually weedy. America has a large crop of even-looking seed, but it does not find favour in this country, the plant is so small and weak that we doubt whether it is an economical article, even if the seed should be at a low price. German offers are pretty free, of medium and low qualities; fine clean handsome seed seems scarce.

Alsike: Is in fair supply. Germany has apparently a larger crop than for several years, but the samples we have seen lack the cleanliness of the Canadian and American samples.

Trefoil: Had it not been for the great quantity of yearling and 2-yr.-old seed on the market, this article would have advanced to a high figure, the crops of new, both in this country and on the continent, are much below an average, and quality not good.

Lucerne: French crop reported large, but their home demand is so extensive that prices have already advanced. American supplies are good, with prices a trifle higher than last year. This article has risen rapidly in favour in England during the last few years, and is certainly a valuable crop.

Sainfoin (Giant and common): Perhaps the largest crops on record, both in England and France, of excellent quality.

Italian Rye-grass: The French crop is not large, but owing to the large Irish one, prices are still kept down. English crop below an average.

Perennial Rye-grasses: Again very large crops, with almost record minimum prices. The quality of the samples should be a matter of the greatest importance—more land is fouled by impure Perennial-grasses than by any other means we know of.

Natural grasses: Cocksfoot is in large supply from New Zealand. America has sent the cleanest samples, lacking in brightness, but of the highest germination. Timothy in full supply, and low in price. Crested Dogstail much cheaper than for some years. Meadow Fescue a small crop, but last year's was so large that much of it is still held over, and growths of this are very poor. Meadow Foxtail plentiful. The Poas are scarce, but Sheep's and Hard Fescue in good supply.

White Mustard: English crop large, of almost invariably fine quality; medium and low samples are scarce. Rape: A very small crop in England. Foreign supplies seem good.

Spring Tares: The samples we have seen show excellent quality; the extent of the crop we are not yet able to determine, but we expect it is large. Winter Tares: Still in large supply, both new and yearlings, at almost lowest recorded prices.

COLONIAL NOTES.

THE WEST INDIES.

Dr. Morris, who acted for several years as Assistant-Director at Kew, during which period he rendered valuable services to the Royal Horticultural Society, and made many friends among horticulturists, has taken up his work as Imperial Commissioner of Agriculture for the West Indies. An address which he delivered before the Agricultural Society at Trinidad defines the scope of his future work as comprising the furtherance of every possible agency to benefit the general welfare of the people. The Sugar-cane in its various aspects will receive much attention, and amongst other things attempts will be made to obtain a variety with a higher percentage of sugar, and drawings are to be made of all the varieties cultivated in various parts of the world, so that uniformity and fixity of nomenclature may be secured. Trinidad has a very efficient botanical department, and an energetic and experienced superintendent in the person of our valued correspondent, Mr. Hart. A similar establishment exists in Jamaica under the superintendence of Mr. W. Fawcett, so that these two islands do not stand in need of official assistance in the degree that the less prosperous islands do. Agricultural and industrial schools are to be established, horticultural exhibitions started, agricultural instructors appointed, and experiments carried out. Mr. Hart strongly recommends the growth in Trinidad of Castilloa elastica, a rubber-yielding tree which promises well in a commercial sense, both in British Honduras and in Trinidad.

VEGETABLES.

CARTER'S FORCING PEA.

Those who are on the look-out for a good early Pea for growing in frames or pots, will find no better than Carter's Forcing. It is a variety with a good dwarf habit, rarely, if ever, exceeding a foot in height; the haulm strong, and the plant a great cropper for its height. The pods contain on an average six peas, the flavour of which, when cooked, is that of a first-rate Marrowfat. *H. W.*

Beetroot.

It was stated by "D." in the *Gardeners' Chronicle* for October 15 that finer roots would be obtained if the seed of spindle-shaped Beet was sown at the end of the month of May, instead of earlier in that month. That may be so in some soils, and if the season is favourable for germination and growth; but I have more than once had failures from sowing late, and I now sow seeds for the main crop of Beetroots in the beginning of May. The roots from late sowings, should the summer weather prove very dry, rarely come of a serviceable size on light or dry soils. On chalky soil last season I sowed three varieties, namely, Cheltenham Green-top, Dell's Crimson, and Veitch's Improved Black. Sparrows were troublesome during the hot weather, devouring the young Beet-plants, with the exception of the Green-top variety, growing alongside the dark-leaved varieties, compelling me to use Pea-guards as a protection against them. *H. Markham, Wrotham Park Gardens.*

SOCIETIES.

ROYAL HORTICULTURAL.

January 10.—A meeting of the committees of this Society was held on Tuesday last in the Drill Hall, James Street, Westminster. There are to be two meetings held during the present month, which is an innovation in respect to January that is possibly capable of satisfactory explanation. But to say the least of Tuesday's meeting, it certainly afforded no evidence that a greater number of opportunities is needed during the winter months for the presentation of novelties for Certificates in plants or fruits.

No award save of Medals was made by either the Floral or Fruit and Vegetable Committees. The Orchid Committee granted distinctions to a very few novelties. Nor was the general display of exhibits extensive. But at 3 o'clock in the afternoon took place the most encouraging event of the day. A meeting was held for the election of new Fellows, and the list submitted was so large as to prove that the vigorous growth the Society has continued to make in point of numerical strength is unabated.

Floral Committee.

Present: W. Marshall, Esq., chairman; and Messrs. John Fraser, Owen Thomas, Chas. T. Druery, A. B. May, R. Dean, Wm. Howe, Jas. Hudson, J. F. McLeod, C. J. Salter, J. Fraser, Chas. Jeffries, Ed. Mawley, George Gordon, Chas. E. Shea, Herbert J. Cutbush, Edwin Beckett, H. J. Jones, E. T. Cook, J. W. Barr, Harry Turner, and Chas. Blick.

Some very handsome sprays of Asparagus deflexus, 5 to 6 ft. long, were shown by R. B. Leech, Esq., The Cottage, Wood Hall. The sprays were studded with the very bright scarlet-coloured berries, and were much admired.

Mr. F. Miller, Fulham Road, South Kensington, S.W., exhibited some early spring flowers, including Narcissus, Lily of the Valley, Tulips, Roman Hyacinths, Arum Lilies, &c. These were very tastefully set up in various devices, and relieved with Myrsiphyllum asparagoides and other greenery; also dried Grasses, being several species of Cape Restiaceæ (Silver Banksian Medal).

Messrs. James Veitch & Sons, Royal Exotic Nursery, Chelsea, showed a strong-growing Davallia, named D. intermedia, and supposed to be a hybrid between D. Mooreana and D. decora. The hybrid has larger and broader pinnæ than either D. intermedia or D. decora, and produces large spreading fronds. Messrs. Veitch & Sons had also several varieties of flowering and berried shrubs, including Skimmia japonica, S. Fortunei in berry; Skimmia fragrans rosea in bud; and Skimmia japonica oblata, in bud and in berry. This last one has larger leaves and berries than the other species. The firm showed a number of trusses of warm-house Rhododendrons. A few specimens in flower of Hamamelis arborea (Witch-hazel) were also shown. Taxus baccata erecta semper aurea, sufficiently describes a plant of an ornamental Yew, also from Messrs. Veitch.

A variety of Saintpaulia ionantha with white or flesh-coloured flowers was shown by Mr. P. Blair, gr. to the Duke of Sutherland, Trentham Hall, Staffordshire; the flowers had just a suspicion of purple in them, but are very distinct from the type, and will probably meet with appreciation.

Messrs. F. Sander & Co., St. Albans, Herts, again displayed their valuable new plants of last season, such as Acalypha hispida (Sanderiana), A. Godseffiana, Kentia Sanderiana, Dracæna Sanderiana, and Licuala Jeanenceyi. The very showy A. hispida has been exhibited throughout the year in perfect flower. It is evidently a plant that may be obtained in bloom at any season.

Messrs. Barr & Sons, 12 and 13, King Street, Covent Garden, London, exhibited a batch of plants of varieties of Primula sinensis. The plants were well grown, and exhibited several distinct colours, the "blue" one being especially worthy of remark.

A white decorative Chrysanthemum named Elaine Squelch was shown by E. Speyer, Esq., Boxhurst, Dorking (gr., Mr. H. Squelch).

The orange-coloured Gerbera Jamesoni was shown by Messrs. H. Low & Co., Bush Hill Park, Enfield. The plant had one flower, and was in a pot. This very pretty Composite was figured in the *Gardeners' Chronicle*, June 22, 1889, p. 773.

Mr. R. B. Leech, gr., Woodhall, Dulwich, showed a vase filled with well berried sprays of Asparagus deflexus.

Sprays of flowers of Cyrtanthus intermedius were shown by Mr. F. W. Moore, from the Royal Botanic Gardens, Glasnevin. The flowers of long and very slender tubes of rose-colour, the interior of the corolla being much paler. The orange-coloured calices present a pretty contrast.

Orchid Committee.

Present: Harry Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), S. Courtauld, T. W. Bond, R. Brooman-White, H. Little, F. Sander, J. Gabriel, H. Ballantine, H. M. Pollett, H. T. Pitt, W. Cobb, E. Hill, F. J. Thorne, W. H. Young, H. J. Chapman, and J. Douglas.

The first meeting of the year brought forth an interesting display, though the exhibits were not numerous.

Messrs. J. Veitch & Sons, Limited, staged a group containing many rare hybrids. Of the plants making their appearance for the first time, very remarkable were Angræcum × Veitchi (sesquipedale ♀, eburneum (superbum) ♂), a noble hybrid, in habit intermediate between the parents, i.e., having the leaves more fleshy and more ascending than in A. sesquipedale, and with a decided tendency to produce an elongated scape. The plant bore three fine flowers and one bud, the flowers equal in size to those of A. sesquipedale, but with shorter spur. The sepals and spur were greenish-white, the broad petals and lip clear ivory-white. A First-class Certificate was awarded for the plant, and a Silver Flora Medal to Mr. J. Seden, the chief of Messrs. Veitch's hybrid Orchid department. Another singular and pretty hybrid of more modest pretensions was Epi-Cattleya × Mrs. James O'Brien (E. O'Brienianum ♂, C. Bowringiana ♀). The plant had stout stems, clad with alternate fleshy green leaves, the apex bearing the scape 9 inches in height, and clad with leafy, sheathing bracts at the lower half. The flowers, which were about 2 inches across, had ovate sepals and petals, and singular three-lobed lip, adnate to the column for the greater part of the length; of a bright rose-purple colour, of that crystalline appearance seen in Barkeria Lindleyana (Award of Merit).

Other pretty hybrids were Cattleya × Breauteana var. Hebe (Loddigesii ♀, superba ♂), a pretty flower, somewhat resembling a large Lælia Perrini; Lælio-Cattleya × Dominiana var. Langleyensis, a noble and finely-coloured flower; varieties of L.-C. × Pallas, Cattleya × leucoglossa (Fausta × Loddigesii), Epidendrum × Wallisii-ciliare, Epiphronitis × Veitchi, Cypripedium × Euryades, both spotted and purple-tinted varieties, C. × Niobe, C. × Arthurianum pulchellum, C. × Zeno, C. × Leeanum superbum and giganteum, Dendrobium atroviolaceum, three fine plants of Cymbidium Tracyanum, and other species. A Silver Flora Medal was awarded for the group.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr., Mr. W. H. White), showed Sophronitis Rossiteriana, a remarkable variety of the same form as the ordinary S. grandiflora, but with a clear yellow flower (Award of Merit).

Norman C. Cookson, Esq., Oakwood, Wylam, Northumberland (gr., Mr. Wm. Murray), showed a fine hybrid Cypripedium, raised out of C. bellatulum, and which the committee decided should be named C. × Schofieldianum superbum, it being near to C. × Schofieldium, recorded as C. bellatulum × C. hirsutissimum, but which record the committee doubted. The present flower was large in size, of a clear cream-white ground, evenly spotted with dark purple (Award of Merit). Mr. Cookson also showed his Calanthe × Sybil, a fine pure white hybrid, with the less white C. × Cooksoni for comparison; and the carmine-tinted C. × Phœbe.

Sir Frederick Wigan, Clare Lawn, East Sheen (gr., Mr. W. H. Young), showed a plant of Phalænopsis grandiflora (amabilis) which had been in the Clare Lawn collection since 1884; and flowers of Phalænopsis Aphrodite, Schilleriana, casta, Stuartiana, grandiflora aurea, and leucorrhoda, each of which had been at Clare Lawn for a number of years, the last-named having been purchased from the Downside collection.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed Lælia anceps Rosefieldiensis, a very dark and brightly-coloured variety, with richly-coloured lip, characterised by the clear white of the tube, bearing broad dark purple lines, and by the broad purplish-crimson border to the side-lobes (Award of Merit). Mr. Crawshay also showed L. anceps Titania, a large flower with light rose-pink sepals and petals.

Walter Cobb, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes, showed Cypripedium bellatulum Dulcote var., with yellowish-white ground colour, the spotting being more distinct, and more widely separated than in other forms, showing more of the ground colour (Award of Merit); the fine C. × J. Howes (villosum aureum × Sallieri Hyeanum), which had previously received an Award of Merit; and the distinct C. insigne, Dulcote variety.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. H. J. Chapman), showed Cypripedium × Buchanianum magnificum (Spicerianum × Druryi), a handsome flower, and decided improvement on the original. The flower had the, main features of C. Spicerianum magnificum, but the substance was firmer, the surface more glossy and yellower, telling plainly of C. Druryi; also C. insigne Arthurianum, a large lightly-spotted form.

Henry Tate, Esq., Allerton Beeches, Liverpool, showed three very dissimilar Cypripediums, all supposed to be between C. Boxalli atratum and C. nitens superbum, and named (1) Parksianum, Tates var., the upper sepal flaked with purple; (2) Sirdar, with white upper sepal spotted with purple; (3) Cromer, with pale green upper sepal, with white margin and purple spots.

Messrs. B. S. Williams & Son, Upper Holloway, were rewarded a Silver Banksian Medal for a good group of Cypripediums, &c., and comprising C. Spicerianum, C. × Sallieri, C. × S. aureum, C. × Williamsii, C. × Barteli, C. × Harrisianum superbum, C. × Measuresianum, C. × Leeanum superbum, C. J. Fitchianum, C. × discolor, C. × nitens, C. × Pitcherianum, Williams' var., C. insigne Wallacei, Maulei, punctatum violaceum, albo-marginatum, and grandiflorum; and good examples of Lælio-Cattleya × Sallieri, Oncidium tigrinum, Lycaste fulvescens, &c.

Messrs. F. Sander & Co., St. Albans, had arranged with their remarkable Acalypha hispida, some well-flowered specimens of Phalænopsis Stuartiana, the clear white Miltonia vexillaria virginalis, a very handsome form of Cattleya Trianæi, C. Percivaliana, Oncidium varicosum Rogersii, &c. Mr. Thos. Rochford, Turnford Hall Nurseries, Broxbourne, showed Odontoglossum × Ruckerianum, Rochford's variety, a very handsome form, with well-made flowers of a cream-white, densely spotted with reddish-brown in the way of O. R. egregium (Award of Merit). F. M. Burton, Esq., Highfield, Gainsborough, showed a spike of the original Lælia anceps Amesiana, or a re-introduction of it.

Sir Wm. Marriott, Down House, Blandford (gr., Mr. T. Denny), showed Lælia × Latonia splendens. W. P. Burkenshaw, Esq., The West Hill, Hessle, Hull, sent Cymbidium Tracyanum splendens, with large flowers and dark purplish-brown markings.

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, showed as Phaius Tautziana a plant which seemed to be Phaio-Calanthe × Sedeni rosea, with cream-white flowers marked with dark rose colour.

Fruit Committee.

Present: Philip Crowley, Esq., chairman, and Messrs. Geo. Bunyard, Jos. Cheal, Jas. H. Veitch, W. Poupart, M. Gleeson, A. H. Pearson, Alex. Dean, A. F. Barron, J. W. Bates, W. Farr, W. J. Empson, Geo. Wythes, H. Balderson, F. Q. Lane, Geo. Reynolds, Geo. Norman, and J. Willard.

A nice collection of Apples was staged by Mr. W. J. Empson, gr. to Mrs. Wingfield, Ampthill House, Ampthill. It consisted of about forty dishes or varieties, and some of the best were Gascoigne's Scarlet, Worcester Pearmain, American Mother, King of the Pippins, Ribston Pippin, Mère de Ménage, Baumann's Red Reinette, Prince Bismarck, and Lord Derby (Silver Knightian Medal).

Mr. Hislop, gr., Bletchley Park, Bletchley, showed a dish of the Russet Apple Scotsman.

A basketful of very nice fresh-looking Mushrooms was shown by Mr. J. W. Miller, gr. to Lord Foley, Ruxley Lodge, Esher, Surrey (Vote of Thanks).

WARGRAVE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

January 4.—A fortnightly meeting was held on the above date, Mr. W. Pope presiding.

Mr. J. W. Groves, F.L.S., F.R.M.S., gave the third of the series of his botanical lectures, the subject being, "Roots, Leaf-stalks, and Leaves." The development of the root from the seed was first described, and special attention was called to the root-cap, its structure, and uses. A section of a young root was next described, and the manner in which the structures in the stem become continuous with the structures of the root was clearly explained. The various forms of roots, and their uses, were briefly described, the acid exudation from the root-hairs, and its uses, being minutely explained. A typical leaf was taken, and its blade, leaf-stalk, and stipules pointed out. An imaginary microscopic examination of its structure was made, sketches drawn on the blackboard, and the epidermal-cells, stomata, and guard-cells, chlorophyll, and air-spaces all minutely described. The formation of the hard glossy surface on such leaves as the Holly and Laurel, and on straw, Bamboos, &c., and its uses, were explained, as were also the water-pores in such plants as the Fuchsia, Nasturtium, and the Nectaries; crystals and hairs in some other plants. The various forms of leaves were passed over, but the four principal uses dwelt upon, viz., absorption, assimilation, respiration, and transpiration. The modification of leaves into prickles, thorns, and tendrils, was also pointed out. The lecturer said he could not conclude without referring briefly to an exceptional class of plants, of which the Sundew and Pitcher-plants were well-known examples. A series of lantern-slides were then exhibited, by way of recapitulating what had been explained.

A hearty vote of thanks was passed to Mr. Groves for his useful and instructive lecture, which he duly acknowledged. A number of microscopic slides of hairs, sections of roots, leaves, &c., were also on view. Mr. W. Pope staged a large group of Euphorbia jacquiniæflora. *H. Colby, Hon. Sec.*

ISLE OF WIGHT.

The annual meeting of the Isle of Wight Chrysanthemum Society was held at Newport on Saturday last. Dr. J. Groves, B.A., J.P., presided over a small attendance. On the proposition of the chairman, the report and balance-sheet were adopted.

Owing to the inclemency of the weather at last year's show, there is a loss of £17 on the year's workings, which leaves a balance in hand of about £4. On the election of officers and committee, Sir Chas. Seeley, Bart., J.P., was unanimously re-elected President; Dr. J. Groves, B.A., J.P., chairman of the committee; and Mr. C. H. Cove, Hon. Sec.

Several important alterations were made in next year's schedule, which it is hoped will be to the benefit of the Society financially, and of greater interest to the lovers of the popular autumn flower.

RESUSCITATING A FLOWER SHOW.

JANUARY 7.—A general meeting of the horticulturists of the district and others interested in the proposal to resuscitate the Society, and hold an annual flower-show in Dumfries, was held on the above date, Councillor NEWBIGGING presiding.

It was agreed to re-form the Society, and revert to the old name, "The Dumfriesshire and Galloway Horticultural Society," this having been actually the oldest Society that had held a public flower-show in Great Britain. The Society was instituted in 1812, and the first show was held in that year. Office-bearers were elected as follows:—Hon. President, his Grace the Duke of Buccleuch; President, Mr. Maxwell, of Munches; Vice-Presidents, Provost Glover, Dumfries; Sir Robert Jardine, Bart., of Castlemilk; Mr. W. H. Scott, of Nunfield; Mr. Galbraith, Terregles; Mr. W. J. Maxwell, of Terraughtie; Mr. Dubs, Cargen; Sir Herbert Maxwell, M.P., of Monreith; and Sir Mark J. McTaggart Stewart, M.P., of Southwick. Mr. Mann (late Secretary of the Newton-Stewart Society), was elected Hon. Treasurer; and Mr. G. Kerr, Dumfries, the Secretary; and a representative committee was also formed. It was agreed to hold an indoor show on Wednesday, September 6.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

JANUARY 10.—The annual general meeting of this popular society was held on the above date, at 5, St. Andrew Square; Mr. M. TODD, the President, in the chair.

There was a very large attendance of members, who took a lively interest in the proceedings. Mr. R. Laird, the secretary, read the report, and the society proceeded to elect their office-bearers and transact other business. The numbers still continued to increase, four life members and 183 ordinary members being added to the roll during the year. The report also referred to the striking success of the Chrysanthemum show; and the council of the association took the opportunity of thanking the Lord Provost, Magistrates, and Town Council for their support. The funds on December 31, 1897, were £679, and the revenue for the year, including the balance from the year from the Chrysanthemum show of £102, was £200, so that the total charge was £879. The funds on December 31, 1898, were £798. Both reports were adopted. An interesting presentation was made to Mr. and Mrs. Mackenzie during the evening of a gold watch and a gold bracelet, in appreciation of Mr. Mackenzie's services as treasurer for fifteen years. The following office-bearers were then elected, and the usual votes of thanks concluded the proceedings:—President, Mr. C. W. Corvam, Valleyfield, Penicuik; Vice-President, Mr. M. Todd, who has served the Society so well as Vice-President for the last two years; and Alexander Mackenzie, the late Treasurer; Mr. Robert Laird, Secretary; and Mr. Wm. McKinnon, Treasure *D. T. F.*

SEEDLING CARNATIONS.

DURING October and November of last year I have had 600 or 700 Pinks from seed, blooming. A few of Messrs. Ladhams', 200 or 300 ordinary mixed Dianthus plumarius, 300 or 400 of Alegatière's strain, 70 or 80 "Nelly," about 100 Mrs. Sinkins, and 28 Her Majesty. I lined 200 or 300 yards of my borders with these, and for weeks before the Carnations, excluding Margarets, were in bloom; these made a lovely show. I had no idea that the old Clove Pink could be so beautiful; they have been undeservedly neglected out here, and considering their many good qualities, this is to be wondered at. They practically extend the Carnation season by several weeks; the stems are not angled like those of so many Carnations, and few or no buds are destroyed in cutting, and yet straight clean stems, 12 inches long, can be had in most of them. Of course, they lack the colours of the Carnation, and the scent is not so pronounced; still, they have a special season to fill, and their exceedingly prolific flowering make them of immense value where great quantities of flowers are wanted. In addition, for the edges of borders they are specially suited, the glaucous-coloured foliage giving a distinct effect, and setting off the brighter hues of the various shrubs and perennials. Of the ordinary D. plumarius I did not get two per cent. double, a few nice half-doubles, and a very fair lot of singles. In M. Alegatière's strain, I had 10 per cent. choice doubles, about same half-doubles, and some fine singles. In Mrs. Sinkins all were double, and all split badly. This variety does not come pure in colour, for all seemed to have a yellowish-green tint in the centre of the flowers. Of the twenty-eight Her Majesty seedlings, only one proved to be true to description, being an immense flower, of purest white, fine broadly-toothed petals, but like Mrs. Sinkins it splits—not very badly though. Three blooms standing in a tall vase in the house, covered a space almost as large as one hand outstretched. One other plant of this variety was true to colour and shape, but much smaller. "Nelly," a rose-coloured Pink, produced quite twenty sorts. Among seventy or eighty plants, only five or six doubles were true to description; it is very finely toothed. *Fred. C. Smith, Angaston, South Australia.*

CATALOGUES RECEIVED.

HARRISON & SONS, 33, Market Place, Leicester—1, Wholesale list of Seeds; Retail Seed List.

KELWAY & SON, Langport, Somerset—Seeds, &c.

HOWDEN & Co., Old Post Office Buildings—Seeds, &c.

BARR & SONS, 12 and 13, King Street, Covent Garden, London—Seeds, &c.

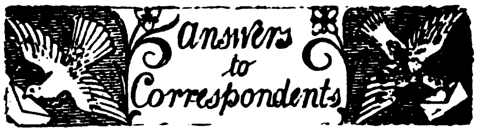
W. FROMOW & SON, Sutton Court Nurseries, London, W.—Seeds.

W. HORNE, Perry Hill, Cliffe, near Rochester, Kent—Fruit-trees, Vegetable Seeds, &c.

HERD BROS., Penrith—Seeds, &c.

HOGG & ROBERTSON, 22, Mary Street, Dublin—Seeds, &c.

J. R. PEARSON & SONS, Chilwell Nurseries, Notts—Seeds, &c.



Answers to Correspondents

BLENHEIM ORANGE: *W. N. G.* First discovered at Woodstock, and received its name from "Blenheim." It is also called Kempster's Pippin. See Hogg's *Fruit Manual*, p. 25, where you will find the history as given in these pages.

BOOKS: *D. H. S.* *My Gardener*, by H. W. Ward, published by Eyre & Spottiswoode, East Harding Street, E.C.; we do not know the price. *The Garden Calender*, by T. W. Sanders, published by Hamilton, Adams & Co., Paternoster Row, E.C., price 2s. 6*d.*—*C. B. G.* Yes, the book is very suitable. A few shillings. Bell & Sons.—*P. J. W.* *Observations on the Cultivation of Roses in Pots*, by W. Paul, seventh edition. Published by Simpkin, Marshall, Hamilton, Kent & Co., 23, Paternoster Row.—*G. A. R.* You do not tell us what description of botany you desire to take up. If you will do this, we will indicate suitable books.

BULBOPHYLLUM DEAREI, &c.: *Beppo.* The plants should be grown in Orchid-baskets or pans, and they should succeed well suspended, as you say yours are, in a stove-house. They should be freely watered with rain-water at all seasons, as it does not require drying-off. Utricularia montana should be planted in Orchid-baskets, and suspended in a warm-house. It requires to be liberally watered, as it is a semi-aquatic plant.

COUCH-GRASS AND DANDELION ROOTS: *F. B.* You would be wise to char the roots, or mix them with a large quantity of fresh stable-dung, and throw into a heap to ferment, turning it once or twice whilst the heat is great.

"CRAG": *F. Myers.* It would doubtless be useful if burned or charred so as to render it of the nature of quicklime. In the state as sent, it is poor stuff in which to grow any kind of garden-plant.

CYPRIPEDIUM LEAVES: *H. H., Peebles.* The leaves sent seem to indicate that the plant has been grown in a too warm or badly-regulated temperature. Being kept in a position where they are in direct contact with the heat coming from the hot-water pipes will often cause a similar appearance.

DENDROBIUM SPECTABILE: *W. P. W.* It may flower from the old pseudo-bulbs. If from the new ones, it will be after they are made up.

DOUBLE-SPATHED RICHARDIA: *J. Young.* This is not at all an uncommon incident amongst the Richardias. It is usually due to high cultivation, with rich manures or compost.

DURATION OF GERMINATIVE POWER IN SEEDS: *A. W.* The well-ripened seeds of Godetia, Calystegia hederacea (pubescens), Lupin, Convallaria, Erythronium, Aquilegia, Thalictrum, Myosotis, and Anemone, would germinate to a large per cent. the second year if sown out of doors in May, or on a mild bottom-heat earlier in the year. The third year few of them would grow at all.

DUROLINE: *C. S.* Useful for sheds and such like purposes.

"KILLMRIGHT" AND LOSS OF PEACH-LEAVES: *T. T.* It may be, as stated by the makers, non-poisonous when taken internally, but unless the instructions sent with it are followed, injury to plants in leaf would be likely to occur. You should state your case to the firm who supplied you with the stuff.

MANURE FOR ZONAL PELARGONIUMS: *Zonal.* Standen's, or Clay's, or Peruvian Guano, are as good as any.

MANURE FOR AN ORCHARD OF PLUMS AND APPLES: *Zonal.* An orchard may be kept in good heart with ordinary farmyard-manure, both liquid and solid; but after the trees come into bearing, the land should receive a biennial dressing of potash and nitrate of soda, superphosphate of lime, as well as a surface-dressing of manure.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—Plympton.* The flower sent seems to be an imperfect one of Lælis rubescens (peduncularis).—*E. K.* Travellers' Ivy, Clematis Vitalba.—*H. H., Peebles.* The leaves of Codiæum, or Croton, as they are more often called in gardens, vary much, but yours appear to be—1, Evansianum; 2, a form of C. trilobatum; 3, C. majesticum; 4, C. elegans; 5, C. Johannis; 6, C. angustifolium.—*T. H., Cheshunt.* The specimen is Dendrobium formosum. It could not come from Mexico as an indigenous plant.—*W. P. W.* The two varieties of Lælia anceps are very fine in colour, but the segments are narrow. The others are Cypripedium × cardinale and Oncidium prætextum.—*J. J. W.* Basella tuberosa.—*F. W.* Cattleya labiata: a poor form.

PELARGONIUM: *Baffled.* The plants have been potted too deeply, and the stem has suffered therefrom. The part beyond the affected point will die, but the other part may live and throw out shoots in course of time.

PRIMULA OBCONICA: *X.* There is no fungus or other disease upon your plant. The leaves have been injured by some detail in the cultural conditions. Have your hot-water pipes been made too hot, or have you treated the plants to excessive fumigation?

SOLANUM CAPSICASTRUM: *Nemo.* You will find an article on the subject in our last issue.

SOUTH AFRICAN BULBS: *G. A. H.* Pot all the bulbs; the small ones several together in a pot, and keep all of them tolerably dry until they start into growth, after which afford water moderately at first and afterwards freely. Most of them require to be thoroughly dried off again after the growth is made, and the leaves begin to wither. In summer they may be kept in the open garden.

STREPTOCARPUS WITH VARIEGATED FOLIAGE: *P. W.* We know of none.

VIOLETS: *A. B.* The blooms of Marie Louise sent were very fine ones.

WIRE-WORK FOR DINNER-TABLE DECORATION: *A. W.* Obtainable from the Horticultural Sundriesmen, probably.

COMMUNICATIONS RECEIVED.—D. W. Thomson.—A. S.—S. M.—H. Correvon.—Dobbie & Co.—H. E.—G. H. G., see this week's Answers to Correspondents.—G. G.—A. S.—C. H.—D. R. W.—R. J. A.—Sutton & Sons.—E. C. H. Thorne.—G. G.—J. W. McHattie.—C. W. S., York.—James.—G. C.—W. M.—E. S., Woking.—C. B.—J. J. W.—S. J.—P. B.—A. D.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS *at home, that it has a specially large* FOREIGN AND COLONIAL CIRCULATION, *and that it is preserved for reference in all the principal Libraries.*

(For Markets and Weather, see p. x.)

THE
Gardeners' Chronicle
SATURDAY, JANUARY 21, 1899.

THE FLORA OF CHINA.

IT is, perhaps, not saying too much to allege that the Chinese and Japanese element in our gardens and in our greenhouses is the most attractive of all exotic representatives. Taking those far Eastern plants that will flourish in the open air in our western and southern counties, and with very slight shelter in the less favoured parts of the islands, it would be difficult to find a parallel. North America, and the extreme parts of South America, and New Zealand, are largely represented in our gardens, but China and Japan give to a great extent our winter variation in flowers. Take, as examples, the very diverse Chrysanthemum and the Camellia. Moreover, it is especially in England that the introduction and cultivation of these far Eastern plants commenced and flourished. Other countries were before us in the earliest European investigation of the marvellous flora of Cathay, but thanks to the natural inclination of our race for gardening and for cultivating plants for their beauty, and, of course, to the facilities our naval and mercantile marine gave us, we outdistanced most other, if not all other, nations in the introduction and cultivation of exotic plants.

We do not forget the splendid collections cultivated in the Imperial gardens of Austria, illustrated and described by the Jacquins, nor the Paris and Berlin gardens of the end of the last and the beginning of the present century. Nor do we forget that the Dutch were before us in Japan; and that the famous work of Siebold and Zuccarini made us familiar with many of the peculiar plants of the far East before they were known and cultivated in the West. But a most remarkable work that has just been published * shows with great fidelity that our naval and mercantile marine, apart from special collectors, made extraordinary efforts to bring home seeds and plants of such things as struck them as being very different from what they had been accustomed to see. One of our greatest writers has said that the floras of the British Islands and Japan were more alike than the floras of Madagascar and Africa; but most gardeners would be able to refute this extraordinary statement. Many of our wild flowers are very beautiful, and our Oaks, Beeches, and Elms are grand amongst trees; yet they exhibit comparatively little variety. Against our one or two species of these genera, China and Japan possess a wealth that is positively bewildering. For instance, at least a score of species of Oak inhabit Japan, and in China no fewer than forty species are at home. Since the commencement of the publication of Forbes and Hemsley's *Enumeration of Chinese Plants*, upwards of fifteen hundred new species of flowering plants have been described in various publications, besides those described in the work in question; and there are probably in the herbaria of Kew and Paris another five hundred species still undescribed. Indeed, the flora of Western China, especially in the mountainous region of the provinces of Yunnan and Szechuen, seems to be inexhaustible; and so many of the shrubs and herbaceous plants are highly ornamental. There is probably no other place in the world that would yield so many hardy and half-hardy plants worth cultivating. Hitherto, seeds of only a comparatively small number have reached Europe. Therefore a good harvest awaits a keen collector. Of course, we already cultivate a large number of different plants from the Far East, and if they were eliminated from our gardens, there would be some big gaps.

A glance through Dr. Bretschneider's book of some one thousand one hundred and fifty pages, enables us to realise how much China and Japan have contributed to our gardens, and how much more they have yet to offer. The talented author has devoted years of research to his task, which he has accomplished in a manner that probably no other person could have equalled. And what is a great boon to the large English-speaking community of the world, it is written in our mother tongue; the style and idioms of which have been practically mastered by the writer. The book covers a much wider area than the title indicates, including indeed besides China, the surrounding countries, Japan, Amur, Mandshuria, Mongholia, and Tibet to its western extremity. It is a comprehensive history of the botanical exploration of this wide area, and to a great extent, of the persons engaged thereon, chronologically arranged under the various nationalities. He begins with Marco Polo, the Venetian, who lived many years in China during the latter part of the thirteenth century, and to whom we are indebted for our earliest knowledge of that vast empire and its vegetable productions. But it was not until the arrival of the Portuguese in China in 1516 that intercourse and trading with the Chinese began. According to Bretschneider, the Portuguese claim to have introduced the sweet Orange from China into Europe before the middle of the sixteenth century; and they also imported various Chinese drugs and other vegetable productions. Very much of our earlier knowledge of the country and its people and products we owe, however, to the Jesuit missionaries, who were exceedingly active during the latter part of the sixteenth century and the beginning of the seventeenth As early as 1610 they had built ninety churches in the eastern provinces, besides many in the interior. Michael Boym, of this order, published the first *Flora Sinensis* in 1656. It contains engravings of twenty-one plants, mostly cultivated for their fruit, and among them is one of those curious, Figs which bear their fruit in huge clusters, springing from the base of the trunk. The Dutch followed the Portuguese in the far East, and long had a monopoly of the trade with Japan.

In 1637 an English fleet appeared in Chinese waters, near Canton, and there is evidence in Ray and Petiver's writings that dried plants were received in this country from China previous to 1688; but James Cunningham (Cunninghamia sinensis) is the first collector of whom we have any definite record. He formed a rich herbarium of Chinese plants (1698–1709), which is now in the British Museum. A century later, in Aiton's *Hortus Kewensis*, we find about eighty Chinese plants recorded as being in cultivation at Kew. The next notable collection of dried plants that came to this country was made by Sir George Staunton and other members of Lord Macartney's Embassy in 1793. They also introduced a number of living plants. In 1803, William Kerr was appointed botanical collector in China for Kew, whither he sent numerous living plants, including the familiar Kerria japonica. The second edition of Aiton's *Hortus Kewensis* (1786-1813) contains nearly a hundred additional Chinese plants. Lord Amherst's Embassy to the Chinese Court (1816 - 1817) was the means of introducing many more plants; and Dr. Clarke Abel's narrative contains an account of those observed and collected, including Lindley's genus Abelia. A few years before this (1810) the Horticultural Society of London was founded. Previous to this—long previous in some cases—many of the classical Chinese plants, such as the Aster, Chrysanthemum, Camellia, Aucuba, Azalea, Tree Pæony, and the Maidenhair Tree had been introduced into British gardens; but soon a greater impetus was given to the introduction of plants by the action of the Society—firstly, by means of correspondents connected with commerce, and afterwards by collectors sent out at the expense of the Society. John Reeves (Reevesia thyrsoidea), who was in China from 1812 to 1831, sent home many ornamental plants, including the charming Wistaria, in 1816; and his son, J. R. Reeves, who spent thirty years in Canton, was also active in the same cause. The original plant of Wistaria is still growing at Chiswick. Dendrobium nobile is another of their valuable introductions; it first flowered in Loddiges' nursery in 1837. John Potts (1821-22), was the first collector who was sent to China by the Society. He made a collection of forty varieties of Chrysanthemums, but through an accident to the ship they were all lost; but he was more successful with other plants. Hoya Pottsii was raised from a single leaf brought home by him in 1822. John D. Parks succeeded Potts in 1823, and he introduced a number of new varieties of Chrysanthemums, described by Joseph Sabine in the *Transactions* of the Society; a number of Camellias, and various other plants.

Passing over numerous contributors to our knowledge of Chinese plants in a living state, we come to Robert Fortune, whose travels and explorations, beginning in 1843, and ending in 1856, inaugurate, as Dr. Bretschneider justly observes, a new era in the history of botanical discoveries in China; and he devotes more than a hundred pages to a summary of Fortune's collections and writings. These, and the labours of subsequent travellers and botanists, are better known to the present generation. But everyone interested in the history of gardening and botany should see Dr. Bretschneider's book, which is a mine of wealth, and a monument of industry and careful research. *W. B. H.*

NOVELTIES OF 1898.

(Continued from p. 20.)

Stove and Greenhouse Plants.—In these the class called decorative still holds sway. New introductions are hailed with enthusiasm if they belong to this class and are easily propagated; otherwise, they are handed over to the specialist or botanist.

Messrs. Jas. Veitch & Sons continue their efforts to improve those showy things of which they make a specialty. Hence, among the large number of new Amaryllis which they have flowered during 1898 some have received certificates, and of these A. Clonia, white, veined scarlet; Tacola, a large vermilion flower; Daones, brilliant scarlet;

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* *History of European Botanical Discoveries in China*, by . Bretschneider, M.D.

and Ideala, white and scarlet, are the best; as of their new Cliveias, C. Optima and C. Favourite are the most distinct.

At the great Temple Show one of the most admired groups was composed of their hybrid strain of Phyllocactus, P. Agatha and P. Epirus being among the most beautiful. Their new forms of greenhouse Rhododendrons, and their improved, large-flowered strain of Streptocarpus also give novel features, and among other useful new introductions of Messrs. Jas. Veitch & Sons may be noted Dracæna Exquisite, very graceful; D. Eckhautiana, a very handsome plant; D. Duchess of York, a fine decorative variety; and Alocasia spectabilis, with silvery leaves 18 inches in length.

Messrs. F. Sander & Co., of St. Albans and Bruges, at the great Ghent Show, and more recently in England, made a most remarkable display of new plants. The one which attracted the most attention, and which will doubtless always be a standard plant in gardens, was Acalypha hispida (= Sanderi, *hort.*). It is a most distinct plant, producing its long, drooping, tail-like crimson inflorescences in great profusion apparently in either stove or greenhouse. As a sub-tropical plant also, it should give a new feature. Other fine new plants of the year by Messrs. Sander, are Acalypha Godseffiana, a compact and pretty decorative kind; Leea sambucina Roehrsiana, a very richly-tinted plant; Dracæna Broomfieldi, green with silver margin; Pandanus Sanderi, with gold-striped foliage; Furcræa Watsoni, and with cream-white variegation; Dracæna aureo-striata and Aralia Balfouriana, both distinct novelties; Panax Mastersianus, an elegant and curious species; Begonia Rex Mrs. F. Sander, with vinous-crimson-tinted leaves; Alocasia Wavriniana, with bronzy, jagged foliage; and Ptychosperma Sanderi, P. Warleti, Ceratolobus Micholitzianus, Kentia Kerstenіana, Licuala Jeanenceyi, and Linospadix Petrickiana, all handsome Palms quite new to gardens.

In tuberous Begonias, Caladiums, and Gloxinias, specialties of Messrs. John Laing & Son, Cannell & Son, and others, the work of improvement has been successfully carried out, and among the many fine things shown, some have been deemed worthy of Certificates.

Among the new introductions of Mr. Wm. Bull, of Chelsea, two are specially noteworthy, viz., Dracæna Victoria, a very handsome type with bright green leaves finely banded with yellow; and Cactus epiphyllum truncatum Princess, a charming white or blush-white variety, and quite a new departure in the species.

Ferns.

Notwithstanding the many new species which have been described by Mr. Jenman in the columns of the *Gardeners' Chronicle*, though exhibited seem to have been mainly recruited by the efforts of the market grower.

Mr. H. B. May, Upper Edmonton, leads with by far the greater proportion of novelties which are not only new and distinct but desirable market and garden plants. In his fine group at the last Temple Show were included his best efforts in new Ferns, and of special note were his Phlebodium glaucum Mayi, a charming Palm-like variation; Adiantum Hemsleyanum, an elegant and light form, named in honour of the clever manager of the firm; Pteris cretica Summersii and P. serrulata gracilis multiceps two elegant new representatives of species supplying the largest proportion of all the market Ferns grown; Davallia fijiensis effusa, a stout grower, with elegantly divided fronds; Gymnogramma chrysophylla grandiceps superba, which carries the cresting to the extreme possible; and other good things.

Florists' Flowers.

This popular section has in every class been advanced by new introductions, the most noteworthy of which have been illustrated in the *Gardeners' Chronicle*, and will be found enumerated in the following list.

Altogether, there is evidence that the work of the past year compares favourably with that of any period in the recent history of gardening, and that the art in all its branches is more generally taken up than ever it has been before, some of the things which had been slighted having again showed signs of renewed vitality, as, for example, the new Camellias shown by Mr. Wm. Paul; the hardy ornamental shrubs shown by Messrs. Jas. Veitch & Sons; Messrs. Geo. Paul & Son, whose Acer Negundo elegans, Ligustrum Walkeri, and Acer Jühlkei variegata are useful acquisitions: the Auriculas of Mr. Douglas and others; the Tree Pæonies which Mr. Kelway, of Langport, seems to have taken up with the same energy as he exercises in all the great cultures which he undertakes; and various other subjects which, although not wholly neglected in gardens, had not been so actively worked of late, but which during the past year seem to show a return to their former favour.

(*To be continued.*)

WATER.

Water is an essential factor in the life of a plant; if moisture is wanting, or if the roots do not transmit to the leaves water in quantities sufficient to provide for losses due to transpiration, the plant is endangered, and ceases to grow. If the scarcity of water continues, the crops dry up rapidly, and yield but a poor return. These crops are only abundant in proportion as the moisture furnished by the soil enables the plants to endure long periods of drought without suffering.

To ensure this provision, the grower, from autumn onwards, ploughs or digs up the land hardened by the desiccation caused by the plants themselves, and by the heats of summer. By breaking the superficial crust the water is not allowed to lie on the surface, but, on the contrary, penetrates beneath it. The first work is, therefore, undertaken with the special object of establishing a reserve supply of water in the ground, and, consequently, rendering it soft and pliable, so that further workings become possible.

These operations provide a tilth that, by progress in the construction of machinery, can be rendered deeper and deeper each year. It is turned over, the soil is broken to a depth of from 12 to 14 inches; nevertheless, the plough often forms hard compact clods, retaining water imperfectly; and the ground, after working, is not completely prepared. It is needful to break these clods by harrows, scarifiers, Norwegian harrows, or Crosskill's rollers, the object being to make the soil mellow and porous, so that on the one hand it may be charged with moisture, and on the other that it may allow all the water which it does not retain to filter through to the subsoil, thus ensuring it from loss by evaporation.

According as this pulverisation is thoroughly done, or imperfectly executed, the reserve of water will be copious or scanty, and the yield good or bad.

A good cultivator knows his land well: he knows in what condition it should be to be profitably worked, he knows the exact time to make the necessary preparation. If he acts carelessly, the soil is compacted into clods, it is badly tilled, and the crops dry up as soon as there is any lack of rain.

Winter is the season when this provision for water should be made, and consequently the earth should be worked then. When the seed-time comes, if an opportune rain does not fall to soften the seed and ensure germination, fresh stirrings and diggings are necessary.

When after the spring sowing the ground is hard, an endeavour must be made to supply the water lacking. The reserve supplies in the deep soil can alone be resorted to; to raise these to the higher levels, the land is rolled, and thus the continuity between the layer of worked soil and the sub-soil, which the working itself checked, is re-established. Instead of improving the soil, the object is to call into action capillarity, by means of which the water from the deep soil is raised to the superficial layers where the seeds have been placed. We have seen, in fact (in the *Annales Agronomiques*, t. xxii, p. 459), that worked land containing in 100 volumes from 38·3 to 40 volumes of air, holds only from 33·3 to 31·6 after rolling; the particles of earth being then brought together, and the rise of water facilitated.

All the successive operations during the year, therefore, aim especially at accumulating in the soil a supply of water sufficient, on the one hand, to allow it to pass deep down so as to serve as provision for the long roots; and, on the other, to cause it to rise into the upper soil to favour the germination of the seed. If it be remembered that the useful ferments contained in the soil, those which secure atmospheric nitrogen, as well as those which form the nitrates, are only effectual under conditions of moisture, if, further, it be remembered that in worked land carefully pulverised the quantity of nitrates formed is very great, it is plain that the cultivator should always consider the working of the land as the true source of abundant harvests, and remember that everywhere the emblem of agriculture is an implement used from all antiquity to dress the earth—the plough [whilst for garden use the spade is even more effectual. Ed.]. *M. Dehérain in "Annales Agronomiques,"* t. xxiii, p. 490.

SEEDING OF THE GREAT BAMBOO
(BAMBUSA ARUNDINACEA).

Some account of the seeding of this plant in its native country may not be out of place at the present time, when the cultivation of the hardier kinds of Bamboo in Great Britain is receiving such general attention, creating, as it were, another link of sympathy between the nations of the East and West, bringing to the minds of former travellers familiar and graceful objects in the landscapes of foreign climes, and to the untravelled some idea of the graceful beauty of one of the most interesting and wonderful genera of plants. It would almost appear that there is nothing in this life unaccompanied with some disappointing drawback, and the more exquisite "a thing of beauty" it first appears, the more crushing the subsequent disappointment.

In the case of the genus under notice, the drawback undoubtedly is the death of the plant after producing seed, this effort of reproduction being, I believe, in most if not all the species, fatal to the existence of the parent plant.

The seeding and subsequent death of at least some of the hardier kinds of Bamboo in Britain may, perhaps, be familiar enough to some people, but it may be doubted if it has fallen to the lot of many Englishmen to have witnessed the phenomena on a large scale in the native country of the Bamboo. It was my lot early in life to see this mysterious act of Nature in relation to the huge forests of Bambusa arundinacea covering hundreds of square miles of country in Malabar and Coorg, in Southern India, and reaching far into the adjoining province of Mysore. It was at the close of the year 1862 that I took up my residence in an upland district of Malabar, where the slopes of the Western Ghauts were clothed with gigantic evergreen forests, and from their base stretching for several miles into the Mysore territory, grew a veritable forest of Bamboo, intermixed with Teak and other deciduous and hard-wooded trees, the Bamboo predominating.

My primary object is to give some account of the seeding of the Bamboo, I yet cannot help writing a few words on the beauty and grandeur of this forest as I first beheld it, and before "decay's defacing fingers" had wrought desolation. Viewed as a whole from an eminence, nothing could well surpass the splendour of this vast area of waving plumes rising to a height of 60 to 70 feet; and individually the clumps as seen more or less isolated on the grassy laterite knolls, were of surpassing beauty. From March until nearly Christmas, the Bamboo is clothed with leaves of a pale delicate green, after which they begin to fall, and the jungle for a month or two is shorn to a great extent of its attractiveness. But there is extra beauty in the young leaves as they begin to appear in response to the first showers of spring. I shall never forget a ride I took on my first arrival in the country along a road leading from Malabar into Mysore, and cut right through the heart of the Bamboo-jungle, and when the trees had on their best attire. The huge clumps stood almost at regular intervals close by the road on either side, the culms bending over and forming a complete archway of greenery for miles. This was the grandest triumphal archway I ever beheld, and when the subsequent seeding and destruction came, one could hardly help lamenting the inexorable laws of Nature.

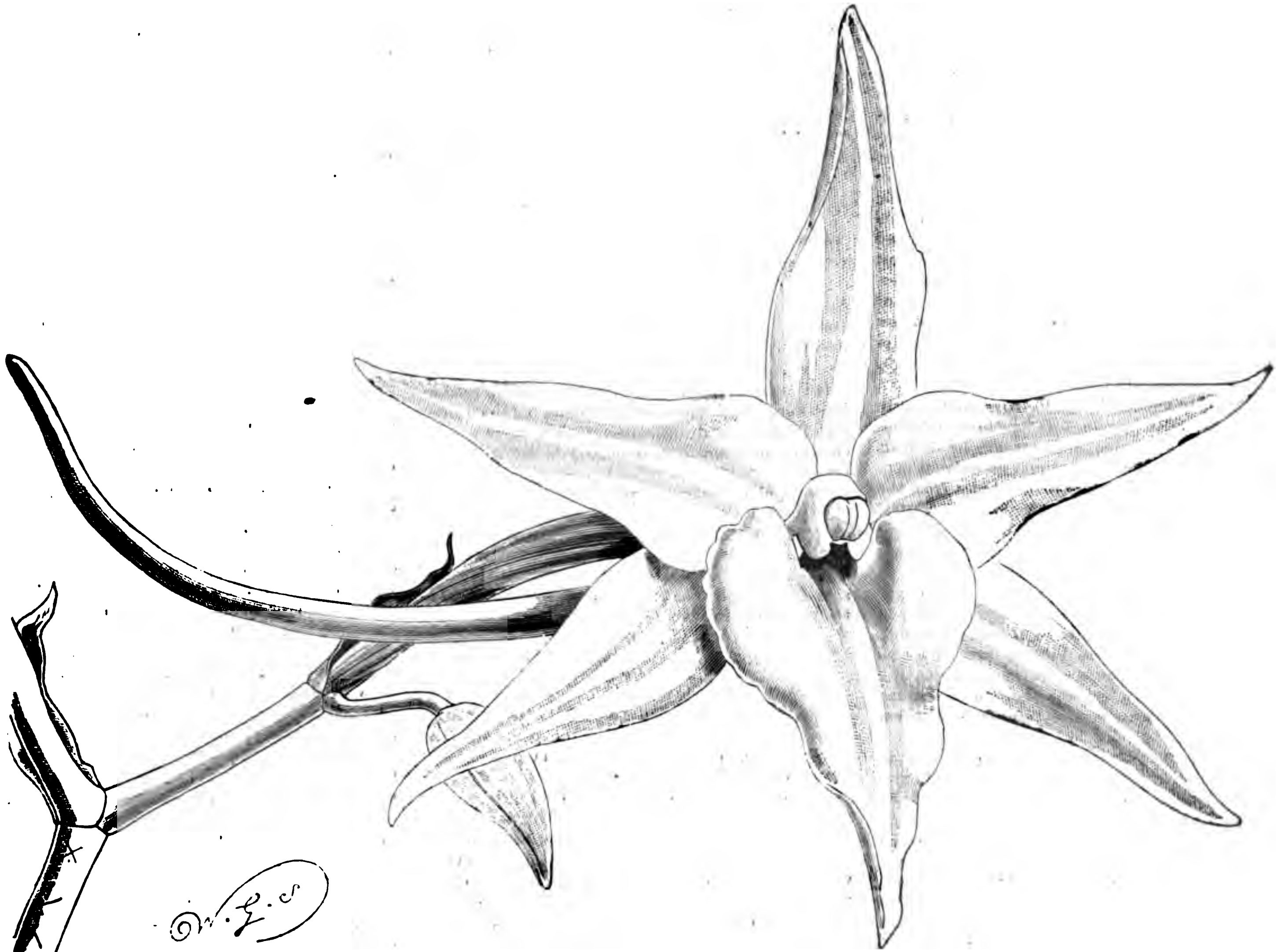

Fig. 10.—Angræcum Veitchi ×: a hybrid from A. sesquipedale by A. eburneum.

(See "Orchid Committee," in p. 31 of our last issue.)

Very soon after my arrival in Malabar, I heard rumours that the Bamboo forests of Travancore to the south were in seed, and in the following season our turn came, and then that of Coorg to the north. So that this strange frutescence would appear to have taken place in sections, beginning at the most southern point of India, and travelling northwards year by year.

When the seed became fully ripe, the culms were quite divested of leaves, and bent down with the heavy load of oat-like seeds—a magnificent harvest, it is true, but one which only occurs twice in a century, and which is then accompanied with the annihilation of the parent plants.

When the seed became quite ripe, it fell to the ground, which was quickly covered with what had a wonderfully close resemblance to Oats. This fall was the signal to the jungle tribes to lay up a store of the grain to serve them during the ensuing monsoon, and groups of men and women were to be seen all over the forests gathering and deftly winnowing the seeds, whilst pea-fowl, jungle-fowl, partridge, and others of the feathered tribe, were not slow in taking advantage of the bountiful supply of food, and waxed fat and lazy, and so became an easy prey to the fowler's gun. Long, however, before a tithe of the rich store could be consumed the season of jungle-fires began, and added by the thick coating of leaves on the ground, completely licked the Bamboo forests from end to end, to all appearance converting into charcoal every seed that had dropped from the trees, extinguishing every hope that the land would ever again resume its former appearance. Nature, however, had her own secret way of preservation, and as time went on, tiny little Bamboo seedlings began to appear, which year by year increased in strength till, in 1877, or fifteen years from the time of seeding of the forests, the country had all but resumed its former grandeur.

No description of mine could possibly convey an adequate idea of the scene of desolation the country presented after the death of the Bamboos over the whole extent of this magnificent forest, which was transferred suddenly from a scene of surpassing splendour into one of dust and ashes. The monsoon, which had brought revivifying power to the leafless Bamboos for the byegone fifty years, and bid them again and again burst into leaf and beauty, at last failed in its appeal to the "dull cold ear of death."

The succeeding hot season began its drying process on the dead culms, preparing them for the fires which were destined eventually to clear the country of every vestige of the old forest. It was several years, however, before this process was completed, and here again rested a marvel, viz., how the young seedlings escaped with life and increased in stature through the years of heat and smoke.

For several seasons in succession the country was filled with smoke from the combustion of the dead and dry culms from about January to April, which made it very unpleasant to the lives of the Coffee-planters and others. There was kept up night and day also a succession of loud reports from the ignition of the pent-up gases between the joints of the huge culms.

I do not know, but I sometimes doubt if there is any example in the vegetable kingdom which can boast of a more rapid growth in a given space of time than the culms of a fully-developed plant of Bambusa arundinacea in its native clime. The clumps send up a yearly supply of culms, which begin to appear in February, and by the end of July they have reached a height of from 60 to 70 feet, and are well furnished with lateral branches from top to bottom, with a diameter, close to the ground, of some 8 or 9 inches. The culms, as they issue from the ground, are furnished with a curious protecting capping of brown-coloured sheaths, which they retain till they reach a considerable height, and the points are out of danger—an admirable protective process of Nature.

With reference to the longevity of the Bamboo, I took considerable pains to arrive at the approximate truth. I questioned and cross-questioned on many occasions the jungle tribes, who had their homes in the seclusion of these Bamboo wilds, and who, previous to the advent of the Coffee-planting industry, hardly ever left, but lived on the produce from their small clearings, edible roots dug with pointed stakes from the woods, honey, and the fruits of the chase. One tribe was called Jain Coorumbers, or, in plain English, honey men, or honey collectors. They are a lively race of people, with a wonderful amount of intelligence, and withal a rare appreciation, among natives, of fun and humour. I singled out several of the elder and most intelligent of this interesting tribe for my inquiries, and arrived at the conclusion that fifty years, or thereabouts, was the limit to the life of Bambusa arundinacea. There were several other species of Bamboo in the district, which, curiously enough, seeded simultaneously with B. arundinacea.

The uses to which the larger Bamboo is put in Malabar and other provinces of Southern India are too numerous to mention, and it would be difficult to imagine what the natives would do without it.

The Bamboo in Malabar is found almost from the sea level up to an elevation of something over 3000 feet, so that its range is considerable, and although it is generally described as a stove-plant in England, it might, I think, flourish in a house with less heat than that usually assigned to a stove, and might possibly, without hurt form an interesting object in the sub-tropical garden during a warm summer. To make the canes more lasting, and, in some measure prevent the ravages of the white ant, the natives of Malabar adopt the practice of soaking them in water for some months before putting them to use.

The belief, or rather superstition, obtaining in some parts of England with regard to the influence of the moon on vegetation is also found amongst the natives of Malabar, and no native will cut a tree or a Bamboo for his own use during the wane of the moon.

For some reason unexplained these Bamboo forests of Malabar are very unhealthy, alike to European and native. Ague and fever prevail, more especially during the showery weather of spring, and immediately after the end of the south-west monsoon, when the ground begins to dry, or, as the natives put it, "during the making of mud and the making of dust." The natives sometimes attribute the prevalence of malarial fever in these jungles to the quality of the water, and I have frequently known a gang of coolies fresh from the Mysore stop at a Coffee plantation and taste the water, and then pass on to the next plantation.

If I am correct in thinking that the life of Bambusa arundinacea is limited to fifty years, those forests in Malabar which I saw in seed and then perish, will again come to maturity about the year 1913, when will be witnessed a very curious phenomenon in the vegetable kingdom. *J. Lowrie.*

MANURIAL REQUIREMENTS OF ORCHARDS AND FRUIT TREES.

IT does not seem to be sufficiently understood that fruit trees use up plant-foods in the same way that other crops do. The common neglect of orchards seems to show that many fruit-growers think otherwise, or else do not think about the matter at all.

We are told by Mr. L. H. Bailey (*Principles of Fruit Growing* *) that the depletion of land by fruit trees is very serious, from the fact that plant-foods are locked up for many years in the trunks and branches of the trees. On the other hand, it may be mentioned that the roots of trees have a larger foraging area than the roots of smaller-growing and annual crops. Thus, we find the roots of trees extending widely in search of food, while the roots of an annual crop have a comparatively limited range.

Fruit removes from the soil certain proportions of potash, phosphoric acid, and nitrogen, and these elements must be replaced if fruit-growing is to be a success. Potash is the predominating constituent in Apples, Cherries, Damsons, Peaches, Grapes, and most stone-fruits, while nitrogen takes the lead in Pears. A sufficiency of lime is also very essential in the growth of Pears.

The following table gives the relative amounts of the essential ingredients in Apples, Pears, and Peaches per 100 bushels of fruit :—

Selected Constituents in 100 Bushels of Three Descriptions of Fruit.

In 100 Bushels of—	Phosphoric Acid.	Potash.	Nitrogen.
	lb.	lb.	lb.
Apples	1	10	7
Pears	1½	4	7
Peaches	2½	13	6

It is more economical to grow large marketable fruit than small unsaleable samples, as the latter take from the soil, bushel for bushel, more of the elements of plant-food than the better grades of fruit do.

Professor Roberts has estimated the amount of plant-food which may be expected to be carried away in the fruit of the Apple, and blown away in the leaves of the tree (not computing the amount stored up in the wood), for the period between the ages of thirteen and thirty-three years of Apple-trees, to be as follows :—

	Apple-fruit.	Apple-tree Leaves.
Nitrogen	499 lb.	... 457 lb.
Potash	729 ,,	... 442 ,,
Phosphoric acid ...	38 ,,	... 126 ,,

Thus, it is seen that, during the twenty years of fruiting-growth, there will be required in fruit and leaves 956 lb. of nitrogen, 1171 lb. of potash, and 164 lb. of phosphoric acid.

While the above results are obtained by assuming a given amount of Apple-fruit and leaves per year in a fruitful orchard, and while the facts in any given case, at any given time, may vary widely, yet it is believed that these figures are valuable, because they furnish a means of measuring in any given case with a great degree of accuracy the amount of soil exhaustion.

With regard to the question of manure, whatever is used as an orchard fertiliser should be readily available, so that the trees can be benefited from the period the manure is worked into the soil.

Professor Voorhees writes : "It is argued by many, and sometimes by those who should know better, that fruit-growing is quite similar to growing timber-trees ; that the question of soil-exhaustion is not a matter of very great importance, provided the soil is well cultivated, and that all soils contain sufficient quantities of the food elements to ensure the relatively small available supply required from year to year."

It is admitted that on soils of good mechanical condition, well drained and cultivated, which are naturally adapted by their fertility for fruit-growing, because well supplied with the essential constituents, namely, nitrogen, phosphoric acid, potash, and lime, the exhaustion arising from the continuous removal of fruit crops will not become apparent for a long time ; but it should be emphasised that it is only upon soils which possess these characteristics that the growth of fruit, even poor fruit, can be obtained for any considerable period without the application of manure.

It is evident that the manurial requirements of culinary vegetables and similar crops must be different from those necessary to the growth of fruit. In the first place, as a rule, vegetable crops require but one year for the entire processes of growth and maturation. For fruit-crops, on the other hand, with but few exceptions, the purely vegetative processes continue for at least three years, and with many kinds much longer. After the fruit-bearing period begins the vegetative processes do not cease, but are coincident with the growth and ripening of the final product, the fruit.

In the second place, the yield of fruit-trees differs very materially in its character from that of ordinary garden crops, which develop and mature their products in one season ; while the larger fruits, such as Apples, Pears, Quinces, &c., require a whole season for their growth and maturation. Accordingly, it is necessary that there should be a constant transfer of the nutritive juices from the tree to the fruit throughout the entire growing season, while the growth for each succeeding year of both trees and fruit is dependent upon the nutrition acquired and stored up in the buds and branches, as well as upon that which may be derived directly from the soil.

In the third place, the relation of fruit-growing to soil exhaustion is very different from that in kitchen-garden crops, because in orchards there is an annual demand for specific kinds and proportions of soil constituents ; it is really a continuous cropping of the same kind ; there is no opportunity, as in the case of ordinary garden crops, to correct the tendency to exhaustion by a frequent change of crops, or the frequent growth of those which require different kinds and amounts of plant-food constituents.

In studying methods of manuring orchards, however, it must be admitted that the general principles of manuring which apply to fruits, apply quite as well to kitchen vegetables ; that is, the essential constituents of manures must be the same. A fruit-tree will not make normal growth in a soil destitute of nitrogen. That nitrogen encourages leaf-growth is a recognised fact, and since trees grow by means of both leaf and root, its presence is required in the soil in order to promote the growth and extend the life of the tree.

It is evident, too, that potash is an essential constituent in the growth of fruits, not only because it constitutes a large proportion of the ash of the wood of the Apple, Pear, Cherry, and Plum, and sometimes more than fifty per cent. of the ash of fruit, but because it forms the base of the well known fruit acids ; and in order to nourish a tree properly, as well as to insure proper ripening, phosphoric acid is also very essential, especially for stone-fruits.

It is also a matter of common observation that, in the production of stone-fruits particularly, lime is an important constituent. Its function seems to be to strengthen the stems and woody portions of the tree, to shorten the period of growth, and to hasten the time of ripening. Fruit-trees growing on soils rich in lime show a stocky, steady, vigorous growth, and the fruit ripens well, while those on soils which contain but little lime, particularly the clays, appear to have an extended period of growth, the result of which is, that the wood does not mature, and the fruit does not ripen properly. *J. J. Willis, Harpenden.*

CURIOSITIES OF ORCHID BREEDING.

(*Continued from p.* 14.)

PREPOTENT GENERIC CROSSES.—Perhaps the strangest curiosity in the history of Orchid hybridisation is the remarkable prepotency of the genus Zygopetalum over the three genera Odontoglossum, Oncidium, and Lycaste, so far as experiments have been made. Zygopetalum Mackayi (Hooker) has been crossed with four distinct species of Odontoglossum, viz., O. Pescatorei (Linden), O. crispum (Lindl.), O. grande (Lindl.), and O. bictonense (Lindl.), also with one species of Oncidium, O. unguiculatum, and one species of Lycaste, L. Skinneri (Lindl.), by more than one hybridist, and the result has always been the same, namely, Zygopetalum Mackayi pure and simple, without a trace of the peculiar structure of the pollen-parent in any case. The result is very perplexing, and exceedingly difficult to account for. Parthenogenesis, too, is evidently a broken reed to lean upon, for the seedlings from the same seed-pod differed among themselves in colour and other minor characters, which would hardly have been the case had they arisen from parthenogenetic seed-buds. Neither is Z. Mackayi naturally prepotent over other species when crossed, there being at least three cases to the contrary. Nor is the genus Zygopetalum naturally prepotent over other genera, as two distinct and intermediate hybrids between Zygopetalum and Colax testify. As in the case of the Epidendrum crosses, mentioned above, it may be suggested that Zygopetalum is the ancestral genus of Odontoglossum, Oncidium, and Lycaste, and that the characters of the ancestral genus remain latent in the more recent genera, with the result that when the latter are crossed with the former, the mixing of the germ-plasms causes these original characters to dominate, the outcome being a reversion to the ancestral genus Zygopetalum.

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* *The Principles of Fruit Growing*, by L. H. Bailey (Publishers, Macmillan & Co., London).

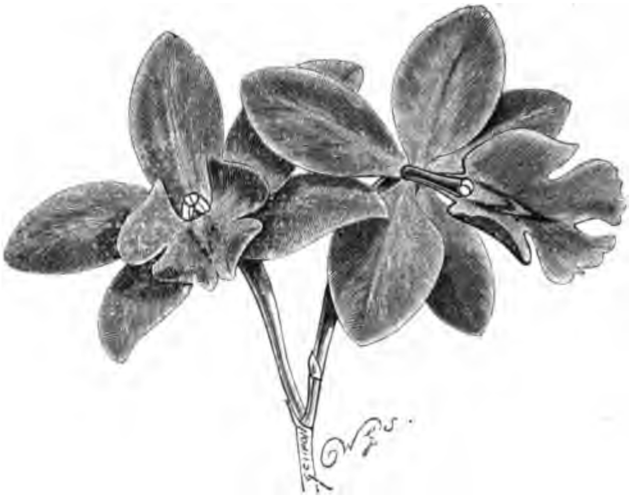


Fig. 11.—Epi-Cattleya Mrs. James O'Brien × ; flowers rosy-purple.

A rather interesting fact has come to light which certainly lends colour to the above speculation:—The seedling Odontoglossums, raised in the gardens of Baron Rothschild, of Paris, during the first eighteen months of their growth, are said to have resembled Zygopetalum more than they did Odontoglossum. This coincides with the established fact that living beings tend to resemble their ancestors in the early stages of their development.

Another curious fact in connection with generic crosses may perhaps be of interest, and that is the remarkable crosses between the East Indian species of Cypripedium and the South American species; these two sections of the old genus Cypripedium have recently been raised to generic rank, under the names of Paphiopedium and Phragmipedium respectively, by Mr. R. A. Rolfe, of Kew, and seem to form two distinct and natural groups. Hybrids between these two new genera are peculiarly interesting, inasmuch as the former has a one-celled ovary, while the latter has a three-celled one, showing that this condition is no barrier to fertilisation. More than twelve distinct crosses between different species of these two genera are on record, and many plants have been raised, but so far all resolutely refuse to flower, notwithstanding the many inducements that have been put in their way, and many of them are now large vigorous plants, long past the usual flowering age. One plant of these crosses is recorded to have flowered in the United States, but as it flowered exactly the same as the mother-plant in genus, species, and variety, one cannot be quite sure that the cross was really effected.

Many of the remaining plants (the writer has several in his collection) are distinctly intermediate in their foliage and habit of growth, and clearly bear the stamp of their recorded origin.

Secondary and Tertiary Hybrids.

Of the 800 distinct crosses mentioned in the foregoing, some 270 are secondary hybrids, i.e., hybrids of the second generation, one or both parents being a primary hybrid; while thirty are tertiary hybrids, i.e., hybrids of the third generation, one of the parents, at least, being a secondary hybrid. So far no hybrid Orchids are recorded to have flowered beyond the third generation, but perhaps it may not be premature to mention that unflowered hybrids of the fourth generation are known to be in existence. The writer has in his collection six hybrids of the fourth generation, five years old, all raised from the same capsule, and which contain in their pedigree five distinct species, and three distinct hybrids; so that in the near future there will be ample material in this direction at the disposal of the student of heredity; with this distinct advantage, that Orchids being individually valuable, their pedigree is carefully and systematically recorded, which unfortunately is more than one can say of the great majority of garden hybrids.

A careful examination of secondary hybrids shows them to be very different from primary hybrids in their range of variation. As we have already seen, primary hybrids are comparatively uniform in their characters; so much so, that, as a rule, they are quite distinct from their parents. On the other hand, secondary hybrids have a much wider range of variation, often approaching either parent, and sometimes even reverting wholly to one or the other. For instance, to take the simplest form of a secondary hybrid, i.e., a hybrid crossed with one of its parent species. We find that the offspring, as a rule, are very variable, a few reverting to the parent species, and a few to the parent hybrid; but the great majority are intermediate forms approaching either parent, the whole forming a series of links between one parent and the other. In short, we find that secondary hybrids have a far wider range of variation than have primary hybrids.

Natural Hybrids.

The existence of natural hybrids was formerly thought by some naturalists to be highly improbable, if not actually impossible. But now, when absolute facsimiles of supposed natural hybrids have been raised by hand in gardens, from the same two species among which they naturally grow, they can no longer be regarded as pious speculations, but are indeed accomplished facts. The number of proved natural hybrids in Orchids alone is now very considerable, with the result that many intermediate and doubtful forms, hitherto classed as distinct species, are now placed in their proper position as natural hybrids. Mr. R. A. Rolfe, of Kew, has done yeoman service in reducing the chaos of natural hybrid Orchids to something like order. And so it has come to pass that artificial hybridisation, which it was supposed would lead systematic botany into the direst confusion, by the irony of fate, seems destined to be the only trustworthy means of saving systematic botany from its own confusion; and the systematist, however orthodox he may be, can no longer afford to ignore artificial hybrids. *C. C. Hurst, in "Nature."*

(To be continued).

ORCHID NOTES AND GLEANINGS.

EPI-CATTLEYA MRS. J. O'BRIEN.

This is a cross between an Epidendrum, itself of hybrid origin, and Cattleya Bowringiana. The plant was raised by Mr. Seden, and shown at the Royal Horticultural Society on the 10th inst. by Messrs. Veitch, when it received an Award. The habit is that of Epidendrum, and the general appearance of the flower (fig. 11) is also like that of an Epidendrum, but the lip, although connate with the column, as in Epidendrum, has its scoop-like lateral lobes partially encircling the column, thus showing traces of its Cattleya parentage, and the rich deep rosy-lilac colour of the flower recalls that of Cattleya Bowringiana. The upper end of the column is petaloid, as in Cattleya; so that, while on the whole, the appearance is that of Epidendrum, closer scrutiny reveals the existence of peculiarities belonging to Cattleya.

The flower is about 4 to 5 cent. in its longest diameter, and rather less transversely. The sepals are ovate-lanceolate, broad at the base, about 1 cent. broad in the centre. The petals are about 15 mill. across, the broadest portion being between the base and the middle. They are ovate-oblong, narrowed at the base, so as to be almost stalked. In colour, both the sepals and the petals are bright rosy-lilac. The lip is even deeper in colour, between 2 and 3 cent. in longest diameter, 2 cent. in greatest breadth. The stalk of the lip is connate with the column; the disc is oblong, with two lateral, oblong, rounded, erect lobes, and one anterior, flat, spreading lobe, the latter being divided into two rounded, slightly-toothed lobules, separated by an excised sinus. The column is about 1 cent. long, deflexed into a horizontal position, dilated above into two petaloid lobes, one on each side of the concave stigma. The two halves of the anther are widely separate; each of the four subdivisions contains a linear, imperfectly-developed granular pollen-mass. The slender, elongate ovary is marked by six prominent rounded ribs, separated by as many furrows. It contains a single cavity, with no trace of ovules.

Dictionnaire Iconographique des Orchidées.—The last numbers, dated August and September, 1898, but which have only lately reached us, contain figures of Angræcum eburneum, Bory; Cattleya granulosa var. Schofieldiana; Cypripedium Lachesis, Reg. Young; C. nitens superbum; Dendrobium Calceolaria, Carey; D. densiflorum, Wallich; Odontoglossum crispum var. Wrigleyanum;

O. citrosmum, Lindley; Oncidium micropogon, Rchb. f.; Phaius, Norman, var. roseus; Sobralia xantholeuca, hort.; Vanda Kimballiana, Rchb. f.; Vanda Denisoniana, Benson and Rchb. f. In the September number are Angræcum modestum, Hook. f.; Cattleya labiata var. Petersii marmorata; C. Prewetti, hort.; Cyrtopodium punctatum, Lindley; Dendrobium superbiens, Rchb. f.; Lælio Cattleya, Kranzlini var. Clementinæ; Miltonia candida var. purpureo-violacea, Cogniaux; Odontoglossum Hunnewellianum, Rolfe; O. Andersonianum, Rchb. f.; Oncidium chrysomorphum, Lindley; O. caloglossum, Rchb. f.; Phalænopsis amabilis, Blume; Vanda lamellata, Boxalli, Rchb. f.

This useful little publication, which has the immense advantage of scientific accuracy, has now completed its second year of publication, and a list of all the plates hitherto published is given, arranged in the order in which they may be placed in the little portfolios issued with the plates. At present a considerable number of the genera are without any "farde special," but we trust, as the series progresses this defect may be remedied, so that each genus may have its own portfolio. We are glad to find that M. Cogniaux does not break up the old genus Cypripedium, but adopts the newly-proposed names as sectional.

THE WEEK'S WORK.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Bedding-plants.—All stock plants should be kept well up to the light to keep the growth sturdy and the foliage strong; give sufficient water to keep them from flagging, so that in a few weeks' time, when the daylight lengthens, and with the application of more heat, they will throw good cuttings. Pelargoniums should have plenty of air and light, to prevent damping-off. Keep all flower-buds picked off, as this weakens the growth.

Pæonies.—Plants of P. officinalis, which, having grown into large clumps, are showing signs of weak growth in the centres through the soil having become exhausted, should be lifted and divided into pieces by means of a sharp spade, leaving on each division from four to eight crowns. All roots much damaged in the operations should be removed with a knife, and the wounds dressed with powdered charcoal. The divisions, when early planted, take readily to the new soil, and bloom freely the second year. If planted in shady positions, the blooms last in perfection a long time. The stations for the new plants should be heavily manured and deeply trenched, new loam and crushed bones being added to the staple.

Tree Pæonies (P. Moutan).—These, unfortunately, push their young growths so early in the spring that the flower-buds are apt to get killed by frost. In planting choose a position facing west, or where the cold cutting wind from the east does not reach them, but as fully exposed to the light as possible, consistently with the necessary shelter, so as to encourage stocky growth; isolated places on lawns, or in nooks backed up by shrubs, suit these varieties admirably. In planting Moutan Pæonies, being usually grafted on stocks of the common Moutan and P. albiflora, should be planted sufficiently deep to cover the point of union. A nice selection of the best double varieties, and those which can be purchased in good-sized plants, may consist of Reine Elizabeth, Gloria Belgarum, Jeanne d'Arc, Louise Mouchelet, Madame de Vatry, Madame Laffay, Madame Stuart Low (very fine), Princess Louise, Gloire de Versailles, Marchioness of Granby (semi-double), and Rubida.

Herbaceous Pæonies.—These plants being perfectly hardy, require but little attention when planted properly; and the flowers are excellent for cutting, being delicately scented, and very showy. Here we have them planted on the edge of shrubberies, or in kidney-shaped beds, alternate with the yellow-flowered crown Imperial, Fritillaria imperialis maxima lutea, for the sake of the pleasing contrast of the yellow flowers of the former, against the young red-shoots of the Pæonies. In planting these varieties, the same kind of compost may be used as I have recommended for the tree section. In selecting places for them in the shrubberies, see that the shrub near is not one whose roots will rapidly encroach and deprive the plant of its nutriment. There are so many good varieties that I will only name a few of the best, that is, those which have good substance, fine colours and good form, viz., Duke of Clarence, Glory of Somerset, Mountebank, Princess Beatrice, Princess May, Queen Victoria, Lady Alexandra Macduff, Gwendolin Cecil, Lord Rosebery, Connie Culot, General Millekin, Lottie Collins, Festiva, Phormis extra fine, and Persimmon. These should have prominent places afforded them, and older varieties removed, parted, and planted in the reserve garden.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Phalænopsis.—Various members of this interesting genus will, when grown with success, be on the point of displaying their blossoms, and the species about to do so are P. amabilis, grandiflora and its variety aurea, Schilleriana, Stuartiana, Sanderiana, and the natural hybrids casta, Cynthia, leucorrhoda, and intermedia. The plants, if suspended now, will have to be lowered as the spikes lengthen, in order to prevent contact with the roof. The plants will need a fair amount of moisture at the root and humidity in the air, more indeed than otherwise would be the case if it were not necessary to use fire-heat largely to maintain the required temperature. My method of affording water to Phalænopsis is to immerse the baskets containing them in a pail of water to about two-thirds of their depth, leaving capillary attraction to moisten the remaining portion of the materials. In doing this, frequent applications are necessary, and the sphagnum-moss never gets into a saturated state. Failure in the cultivation of these lovely plants is often due to attempts made to keep the sphagnum-moss living and green by frequent and copious applications of water during the winter months. Phalænopsis Luddemanniana, P. violacea, P. speciosa, P. Mariæ, P. Boxalli, P. tetraspis, and others of that section, should occupy the moistest and shadiest part in the East Indian-house, and should be afforded water in the same manner as the other species. P. Esmeralda, and its varieties antennifera and Brysoniana, with P. Lowii, will need water only occasionally, to prevent the young leaves shrivelling. I believe they are deciduous in a state of nature, and the last-named is often so under cultivation, without being apparently injured thereby. Drip from the sash-bars always causes injury when it falls into the centre of a plant, and to lessen the chances of injury from this cause the plants should occupy positions midway between the bars. It is well to carry a soft-haired brush when watering, so that should any water fall into a plant it can be removed. The sash-bars should be wiped with a sponge fastened to the end of a stick when there is a large accumulation of moisture on them.

Destroying Slugs and Snails.—The mild open weather suits most of the inmates of the cool-houses, and the small amount of fire-heat used or necessary is especially beneficial to Odontoglossum crispum and allied species. Many of the plants in these houses are throwing up their flower-spikes, needing careful protection from slugs and snails. To capture these creatures, saucers containing bran, Cabbage and Lettuce-leaves, and other tempting baits should be placed amongst the plants, and examined nightly. The practice of standing the plants on an inverted pot, placed in a saucer of water, is not to be commended, as the potting materials remain wet for too long a period of time to be good for the plants. Wadding also placed round the flower-spike is of little avail, for it soon gets moist, and then it forms no longer a barrier to the slugs. A plan worthy of a trial is to insert a disc of perforated zinc between the plant-receptacle and the one it stands on, its edges extending about an inch from either.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Early Figs in Pots afford the earliest crops of fruit, and where no house can be set apart expressly for their cultivation, the early vinery or Peach-house will be found convenient places during the early stages. Those trees that were brought in some time since will have burst into leaf, and it will be safe to adopt a higher temperature. The materials for affording bottom-heat will probably stand in need of replenishing, so that no serious fluctuation of warmth to check root-action ensues. If the plunging-thermometer indicates a temperature above 80°, raise the pots slightly from their position, so that some of the heat may escape, and when a cooling of the bed takes place, the pots may be re-plunged. When five or six leaves have been formed pinch out the growing point of the stronger shoots; weaker ones may be stopped before they reach this length. This regulation of the growth will assist the fruit, as well as prepare for a successional crop in the current season's shoots. A temperature of 70° from fire-heat will be ample for the earliest trees, with 10° higher during sunshine. At this point ventilation may be afforded, in accordance with external conditions. Syringing will be necessary daily when there is sun, and the floors must be kept moist by repeated damping down with a rose watering-pot or a syringe.

Successional Trees.—These usually occupy a portion of a house in which Peaches or Vines are grown, the back wall frequently being allotted them. Here their general treatment is identical with that given the other inmates. If the Fig crop is an important one, they will have priority of attention. The same routine in cleaning of the roof and walls, dressing the trees with an insecticide when scale or mealy-bug have been troublesome, should be given as with earlier-started trees. Where there is a tendency to excess of vigour, there is yet time to correct it by shortening the chief roots, whether the plants are growing in a border, or in small brick-work divisions. In the latter they invariably stray beyond the walls, and when this happens, it is easy to shorten them back to the walls with a spade and knife. Lime plays an important part in the successful culture of Figs, and it should be freely afforded on the surface, preferably that gathered from old and demolished buildings, or old ceiling and other plaster. When this cannot be obtained, slaked lime in smaller quantities may be put on frequently, and washed in with clear tepid water. Together with the lime, new turfy loam may be added as a top-dressing, first removing some of the old surface-soil. In pruning, allow sufficient space for full leaf-development, and cutting away as much of the old and bare wood as possible, and providing for an evenly furnished tree from the ground-level upwards. Trees about to be started should be afforded a moderate application of tepid water if the soil be dry. Those that are in active growth must have careful attention in this matter, or the swelling fruits will assume a yellow tinge, and eventually fall off.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener, Dropmore, Maidenhead.

Feeding Land under Fruit Trees in Winter.—Trees of Apples and Pears, or, in fact, any kind of fruit-tree of which the growth, from poorness of the soil or from heavy cropping, is not satisfactory may be assisted by manure at this season. In many instances, sewage-tanks, catch-pits, and other receptacles adjoining dung-yards, stables, &c., in which the drainage from cow-sheds and stables is collected, often become full, and overflow at this season; where such is the case, fruit-trees in the state described may usually be found to which manure-water can be afforded advantageously. Care should be taken that the liquid is diluted rather than strong when using it on the land, although the latter will absorb moderately strong manure-water without injuring the trees. Pear-trees, from the nature of their foliage, have a tendency to shoot off the rain beyond the reach of many of the roots, and, no doubt, some trees are yet in a dry state that received no water in the summer; for although many wet days have occurred, the rainfall to the end of December was very slight, and about 6 inches below the average in our southern counties. This state of the soil was very recently noted when moving a few pyramidal Pear trees, where the ground was firmly trodden down, for lower than 12 inches from the surface the soil was quite dry; and the soil under a standard Apple tree blown down in the recent gale (12th inst.), was in a similar condition. I can therefore recommend applications of water even at the present time, and manure-water may also be advantageously applied, especially where the soil is naturally light. Old fruit-trees usually need most assistance in the way of manuring. Where the soil is known to be in an exhausted condition, the present is a suitable time for renewing or top-dressing the same with new soil and rich manure. In doing this, first remove the surface-soil for a few inches in depth, not injuring or destroying any roots. Bone-meal and wood-ashes, mixed together in equal quantities, are found beneficial, and they should be applied in sufficient quantity to just cover the surface, and afterwards be lightly pointed in. If new loam be available, it may be added in quantity to the staple, and be covered with a mulch of half-rotten manure.

Pruning and Manuring Raspberry-canes.—Where the young canes were not thinned to the required number in the autumn, the thinning should be carried out forthwith, and the old fruiting-canes of last season cleared away and burned. If the canes are trained to wires stretched horizontally, the space apart at which they are planted must regulate the number of canes reserved for this season's fruiting; in any case, a too close training should be avoided, and ample space afforded for summer-fruiting growths. Four or five canes will in most instances be quite enough, and this number should suffice where a single stake is given each stool. In either case, the young canes should be topped at a height of from 4 to 5 feet, and be secured with tarred string or withes to the wires or stakes. Raspberries grown for autumn fruiting should be cut down nearly to the ground. As Raspberries produce numbers of fibrous roots near the surface, digging of the land should not be practised; but after clearing away weeds and rubbish, the ground should be slightly stirred with a fork, and a top-dressing of short-manure afforded, from 12 to 18 inches on either side of the rows. Wood-ashes may also be strewn on the land before laying on the manure. When the rows are from 4 feet to 5 feet apart, the central space, for the width of 2 or 3 feet, may be forked over deep enough to cover in weeds or rubbish, and a dressing of manure, especially if a row or two of some vegetable, as early Savoy Cabbages or Lettuces, be grown between, which may be done when planted at this width without any injury to the canes.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Cauliflowers.—I prefer the old method of raising the earliest crop of this vegetable from a sowing made in the open air in the month of September, transplanting the seedlings under handlights or in cold frames, and for this sowing I have found no better variety than the Walcheren. Afford the plants in handlights and frames all the air possible by the removal of the tops and lights, and only cover them when frost is likely to occur. Keep the surface fresh by stirring the soil, and endeavour to get sturdy growth in the plants. If this old-fashioned practice has made way for winter sowing, a pinch of seed of the Early Erfurt type, and two other trusty varieties to form a succession, should now be sown, sowing in pans or well-drained shallow wooden boxes filled with sandy loam and leaf-mould. Sow the seed thinly, and place in a temperature of 55°, and when the young plants appear, stand the seed-pans in a rather dry atmosphere in preference to a humid one, much humidity causing the plants to damp off; and keep the soil rather on the dry side. When the seedlings have got two leaves each, prick them off 2 inches apart, either in small pots or shallow boxes, and grow them on as sturdily as possible, the aim with spring-sown plants being to keep them from getting checked, as if once this happens, they fail to produce fine heads. The ground on which to grow these Cauliflowers should be thoroughly prepared by digging it two spits deep, and using plenty of rich manure.

Seeds.—Let the remains of last year's seeds be tested for their germinating qualities previously to ordering the present season's seeds. To test any of them let a certain number of each variety be placed in small pots and stand these in moderate heat, and those which take a long period to germinate, or which come up irregularly, should be put aside, as they cannot be depended upon for sowing outside. Every gardener should try a few novelties each year in small quantities, and such as are found to be superior to old varieties should be grown in quantity the next year.

Watercress.—Wherever there is a stream of clear water Watercress may be grown, there being a general demand for this plant as a salad. It can be grown on the north side of a wall, or in a special damp part of the kitchen-garden, and even in pots stood in pans, which are stood in shallow saucers of water. Permanent beds should be now cleared of weeds and rubbish, being planted anew every second year, which job may be done at almost any time after this date. Take up the quantity required to be replanted, then clear out all the rest, weeds and rubbish, out, and replant, laying pieces of stone on the plants to keep them where required.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Winter-flowering Begonias.—The earlier-flowering section of Begonias, which includes Gloire de Lorraine, John Heal, &c., are now out of flower, and the plants should be cut back to within a few inches of the soil, if that has not already been done, at the same time reducing the supply of water until signs of fresh growth are apparent. When they have made sufficient growth, the cuttings should be taken, inserted in sandy soil, and placed in the propagating-frame, or under a bell-glass in the stove.

Begonia socotrana is now at its best. This beautiful species is one of the parents of most, if not of all, the hybrid winter-flowering Begonias. It is not easy to induce it to flower before Christmas, but from the new year onwards it is a most valuable plant, and reigns supreme among Begonias for late-winter-flowering purposes, producing strong trusses of bright pink flowers, which remain a long time in perfection. It is a native of Socotra, as its name implies, and therefore enjoys plenty of heat and moisture; and while growing should be given a light position in the stove, or other house, where the night temperature ranges from 60° to 65°. When in bloom, the plants may be placed in an intermediate temperature if required.

Begonia corallina is of but little use when grown as a pot-plant, but planted out in a warm-house, and trained to a pillar, or, preferably, to a trellis on the roof, it becomes a most striking object. It flowers the whole year through when well grown; but when it is required to be at its best during the winter mouths, it is a good plan to cut off all its flower-trusses early in June, shortening the growths somewhat at the same time, and affording more air and less water. Thus treated, the plants take a short rest, and then break into fresh growth, and commence to flower at the end of October, the huge trusses of bright coral-red flowers hanging from the trellis in the greatest profusion. When planted out in this way, it should be afforded plenty of root room, and good drainage; and when the roots have taken possession of the soil, the plants should be given manure-water at frequent intervals, to compensate for the loss entailed by the production of such great quantities of bloom. The cut blooms are very useful for dinner-table designs upon the cloth, but the trusses are too large and loose for ordinary decorative purposes, its chief use being for the furnishing of pillars and roof-trellis, as described above.

Dipladenia boliviensis.—This white Dipladenia flowers very freely in 5-inch pots, when propagated annually by means of cuttings. The best results are obtained when the cuttings are inserted in the autumn, but cuttings taken at the present time, and placed in thumb-pots filled with peat, loam, and plenty of sand, and plunged in the propagating-pit, will soon strike, and if when they are sufficiently rooted, they are potted into 4½-inch or 5-inch pots, and grown on in the stove, they will flower at the end of the summer or early in the autumn.

Allamanda nobilis and A. Williamsii.—Plants of the former which have been rested and cut back to within 12 or 15 inches of the old wood, may now be introduced into heat if they are required for early flowering, and if they can be afforded bottom-heat by being plunged in a hot-bed in the Melon-house or pot-vinery, the breaking will be greatly facilitated. When the plants have made a few inches of new growth they may be repotted, reducing the ball and returning them to the same sized pots in the case of large plants. The smaller-flowered Allamanda Williamsii flowers freely in small pots, and a plant or two of that variety may be cut back and introduced into heat to provide cuttings, and if these are taken off with a heel when 3 or 4 inches long and inserted in thumb-pots filled with sandy soil, and plunged in a hot-bed, or propagating-frame, they will take root freely. They should be stopped once or twice, in order to produce bushy plants, and be afforded several repottings, the final shift being into a 5-inch or 6-inch pot, in which they will flower freely at the end of the summer. An open porous compost should be used, such as three-parts good loam, one part leaf-soil not too rotten, and half a part each of silver-sand and crushed charcoal, to which may be added a sprinkle of bone-meal.

THE APIARY.

By Expert.

The Apiary in the Winter.—I believe the question of shelter in outdoor wintering is of more importance than is generally believed. Though it is true that in some instances colonies have been known to winter safely when exposed to the fierceness of the winds, these exceptions instead of weakening the rule, can only strengthen it, for it will always be found that the circumstances otherwise were most favourable where the results were so unexpectedly good. In a natural state, the bees which resort to hollow trees can hardly be used as a safe criterion, for we have no means of knowing how many or how few such colonies winter safely in this climate; but even if it could be proven that they generally succeed, the fact that their abode is usually at only a short distance from the ground, and in thick timber, where the force of the wind is lightly felt, and the additional fact that the body of the trunk which they inhabit is very thick—much thicker than our improved hives—would still indicate that some shelter is advisable. The straw-hives formerly used by the old apiarists of Europe were certainly very good abodes as far as winter protection was considered, for they were very thick, and the material used is one of the best non-conductors of heat or cold. But it is out of the question to make such hives to-day, or at least to put them in use in a practical way, so we must see what we can do with the ordinary movable frame-hives. Double-wall hives are very good for winter, especially where they have a dead-air space between the two walls. They are exposed to two weighty objections. The first is, that in the warm days, or in early spring, they are not readily and quickly warmed by the first rays of sunshine, and the bees in them will be less readily induced to take a flight. The other defect is, as to their cost. Few bee-keepers will adopt them because of the expense involved in the purchase of such hives. This objection should have no weight with a practical man, who will readily figure that the first cost of a hive is a trifle when he considers the time of its usefulness, which may be reckoned, if the hive is well made and well painted, not less than thirty years. But, since most of our apiarists have only single-walled hives, it is useless to spend much time in the consideration of anything else. A bee-house, if properly made, built as a shed, with a roof, and three sides closed for winter, would be an ideal wintering place, especially if the front could also be closed during stormy days, and the hives more or less packed in straw, leaves, &c. But a bee-house for a large apiary is almost out of the question, and it is only in small apiaries, or in cities, that they are used. A tight board-fence is a good shelter, as far as it goes, especially if on the north side of the apiary. A movable outer covering, made so as to fit over the hive, and arranged so that it may be taken to pieces and piled away for summer, is very good. It may be made of rough boards, or of thin lumber, to be more easily handled when removed. But it must be so arranged as to permit of the bees' flight during warm days, as said before. It would be a big error to place the bees in any repository, or to cover them with any shelter which prevents their flight, unless the temperature of such repository were kept evenly at the point which would enable them to remain inactive with the smallest possible consumption of stores. That is why the placing of bees in garrets, or enclosed sheds, where they are certainly warmer than out-of-doors, but where the temperature nevertheless falls much below the freezing point, or rises, in warm days, so as to make them restless, has always been an entire failure.

(To be continued.)

Chrysanthemums.—M. Couillard estimates the number of known varieties of Chrysanthemum at more than 8800.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	JAN. 24	Roy. Scot. Arboricultural Society's Annual Meeting.
WEDNESDAY,	JAN. 25	Renfrewshire Gard. Imp. Soc. meet.
THURSDAY,	JAN. 26	—Manchester Hort. Imp. Soc. meet.

SALES.

MONDAY,	JAN. 23	Roses, Hardy Border Plants, Carnations, &c., at Protheroe & Morris' Rooms.
TUESDAY,	JAN. 24	Pæonies, Spiræas, Hardy Perennials, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	JAN. 25	Great Sale of Japanese Lilies, and Palm Seeds, Roses, Continental Plants, &c., at Protheroe & Morris' Rooms.
FRIDAY,	JAN. 27	Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—38·3°.

ACTUAL TEMPERATURES:—

LONDON.—*January* 18 (6 P.M.): Max., 53°; Min., 38°.

PROVINCES.—*January* 18 (6 P.M.): Max., 53°, Southern Counties; Min., 35°, Sumburgh Head.

Mild, stormy, wet.

The Gardeners' Royal Benevolent Institution.

WE do not think we can more appropriately prelude a note on the "Gardeners' Benevolent," the annual meeting of which Society is being held as these pages are passing through the press, than by presenting our readers with a portrait of the Hon. Treasurer. Mr. HARRY VEITCH is well known throughout the horticultural world, and we may venture to say that no one is more popular among the fraternity than he; and more, that no one can show more substantial reasons for his popularity. A keen man of business, he is also ever eager in the promotion of the higher aims of horticulture. As a philanthropist, he is always to be counted on when help is needed. May it be very long ere we have to write his biography! Enough now if we allude to his connection with that admirable Institution, to which he has been so munificent a supporter, and to which he has devoted so much of his energy and time.

The following figures bear witness to his zeal in promoting its welfare, to say nothing of the institution of the Victorian Era Fund which largely does away with the objections that have been raised as to the occasional want of success of candidates, whose friends are less numerous or influential than those who exercise their privilege in favour of the more fortunate claimants. Every approved candidate is now sure of his election sooner or later, and the Victorian Fund provides those who have subscribed to the society, when they were able to do so, with some amount of relief until such time as they can be elected to the full advantages of the Institution. Here are the figures to which we allude, to them we need only add the record that Mr. VEITCH became Treasurer in 1886.

Description.	1885.	1895.	1898.
	£	£	£
Annual subscriptions ...	1,200	1,340	1,496
Investments..	21,100	26,205	27,008
Pensions	1,655	2,668	2,892

At the beginning of last year, 1898, there were no fewer than one hundred and sixty-eight pensioners on the list, ninety-three of whom were men, seventy-five widows. This involves an annual liability of three thousand and sixty pounds.

Sixteen pensioners, we are informed, died during the year, five of the widows being, in consequence, placed on the pension-list for life.

Good service has been done during the year by those who were instrumental in organising flower-shows and other means for promoting the interests of the Society, and specially by the branches or auxiliary societies. The Society must needs have its offices in London, but in all large provincial centres or horticultural districts there should be branches to secure a wider knowledge of, and a more general support for the Society than the metropolitan district alone could furnish. This is important to dispel the objection sometimes raised that the metropolitan members have greater privileges than others. A glance at the list of pensioners and their place of residence is sufficient to show how utterly unfounded this is, but a still better means of destroying this mischievous impression is afforded by the establishment of auxiliary branches like those at Worcester or Exeter.

We believe that an additional seventeen pensioners will be elected on the present occasion, five by virtue of their previous subscription, twelve by the votes of the members. The total number of pensioners will thus be raised to one hundred and seventy-four.

The Victorian Era Fund, to which we have already called attention, came into operation for the first time in 1898, when one hundred and six pounds ten shillings were distributed exclusively among those candidates who were formerly subscribers to the Institution, and who are now awaiting election. The capital of this fund is now over four thousand pounds, so that a sum of nine hundred and twenty-five pounds is required to bring it up to five thousand pounds. A considerable portion of this amount has already been furnished, and the following gentlemen have each promised an additional fifty pounds, conditionally on the entire amount needed being obtained, viz., Messrs. N. SHERWOOD, ARTHUR W. SUTTON, LEONARD SUTTON, and HARRY J. VEITCH.

There can be little doubt that the full sum required, five thousand pounds, will be shortly obtained.

HARRY J. VEITCH, ESQ.

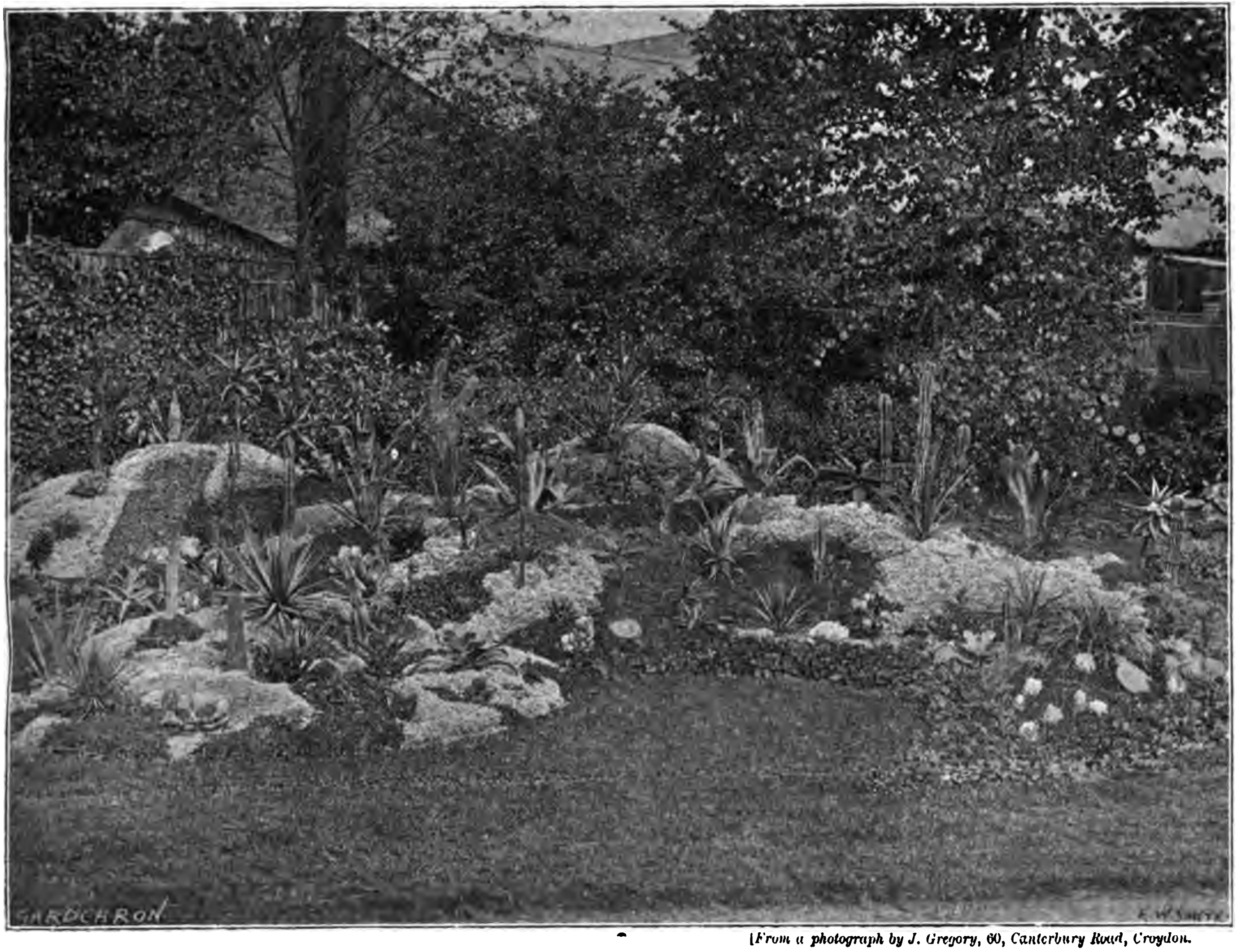
(Treasurer of the Gardeners' Royal Benevolent Institution.)

Such in general terms is a record of the year's working, and we think it will be satisfactory to the subscribers, as showing that the Committee and officers do their utmost to promote the objects for which the Society was instituted, and effect their object at a minimum cost.

While there remains each year a residuum of unsuccessful candidates, we cannot say that we are all of us doing our duty to the full, we therefore earnestly press upon gardeners the necessity of affording a greater measure of support to the Society. The number of subscribing gardeners is still disproportionately small, the new subscribers hardly do more than replace those who have died within the year. We cannot, and do not, believe, but that there are very many whose means would allow them to subscribe for the benefit of their fellows, and for heir own possible advantage. Looked at from his latter point of view, we do not believe a etter investment could be found; considered rom the former point of view, there is no more mperative duty than that of affording help to those who need it.

PENGE RECREATION-GROUND. — One of the prettiest groups of succulent plants that we have seen during the last season, was that of which Mr. GREGORY, of Croydon, has furnished us with an illustration (fig. 13). The plants are placed on irregular raised mounds, and are not only highly decorative but very instructive as conveying an idea of succulent vegetation, and of the character they impart to the scenery. Mr. DRAY, who had charge of these grounds, deserves much credit for his originality. The plants employed comprise the following:—

- Agave Victoria Regina, and other kinds
- Cereus fastuosus
- ,, peruvianus
- ,, ,, giganteus
- ,, unica
- ,, variabilis
- Opuntia missouriensis
- ,, Filipendula
- ,, mamillata
- ,, tomentosa
- ,, leucotricha
- ,, grandis
- ,, polyacantha
- ,, decumuna
- Opuntia albicans, and others
- Euphorbia cereiformis
- ,, pentagona
- Aloe picta
- ,, distans
- ,, ferox
- ,, prolifera
- ,, barbadensis
- ,, pentagona, and others
- Dasylirion Wheeleri
- Bonapartea juncea
- Mamillarias, a few
- Echinocereus, a few



[From a photograph by J. Gregory, 60, Canterbury Road, Croydon.

FIG. 13.—A BED OF SUCCULENTS IN THE RECREATION-GROUND, PENGE, LONDON, S.E.

A large number of Echeverias, Gasterias, Haworthias, Semvervivums, Yuccas of sorts, and other succulent plants is also used; and for ground-work, Saxifragas of sorts, Sedums, Herniaria glabra, Spergula pilifera aurea, Antennaria tomentosa, Ajuga reptans purpurea. Carpet-bedding is always well done, and the beds of Fuchsia, Abutilons, and other plants were all equally good, so that the condition of the grounds reflect great credit on the skill of Mr. DRAY. Mr. DRAY has lately been promoted to the charge of the recreation-grounds at Sydenham.

ROYAL SCOTTISH ARBORICULTURAL SOCIETY. —The forty-sixth annual general meeting of the Royal Scottish Arboricultural Society will be held in the Hall of the Young Men's Christian Association, 14, St. Andrew Street, Edinburgh, on Tuesday, January 24, 1899, at 2 P.M., Colonel BAILEY, President, in the chair. The financial statement shows a balance in favour of the Society of £124 6s. 9d. At the close of the business, Colonel BAILEY will give a short account of his recent visit to Canada, illustrated by lime-light views. Mr. ROBERT GALLOWAY, 5, St. Andrew Square, is the Secretary.

THE ANNUAL DINNER.—The annual dinner of the Society will be held in the Royal British Hotel, 22, Princes Street, Edinburgh, on Tuesday evening, January 24, at 6 o'clock, the Right Hon. the Earl of MANSFIELD in the chair.

HYBRIDISATION CONFERENCE. — The Royal Horticultural Society has issued a provisional programme of an International Conference, to be held on Tuesday, July 11, at Chiswick, and Wednesday, July 12, at the office of the Society, 117, Victoria Street, on "Hybridisation (the cross-breeding of species), and on the Cross-breeding of varieties."

The Committee of Arrangement comprises the following gentlemen: F. W. Burbidge, M.A., V.M.H., Sir W. T. Thiselton-Dyer, K.C.M.G., F.R.S., James Douglas, F.R.H.S., G. H. Engleheart, M.A., G. Henslow, M.A., V.M.H., Maxwell T. Masters, M.D., F.R.S., T. J. Bennett-Poë, F.R.H.S., Charles E. Shea, F.R.H.S., Harry J. Veitch, F.L.S., William Wilks, M.A., Sec. R.H.S.

Plant-growers, whether amateurs or nurserymen, are particularly requested to exhibit hybrid or cross-bred plants (whether in bloom or not), with the species from which they were raised, at the meeting of the Conference at Chiswick, on Tuesday, July 11. All plants should arrive at the Society's Gardens at Chiswick at or before 11.30 A.M., and may be removed at 5 P.M.

The ordinary Committees of the Society will meet at Chiswick on Tuesday, July 11, at 12 punctually, and plants, &c., for Certificate, will be placed before them as at the usual meetings in the Drill Hall, but with the exception of Plants, &c., for Certificate and hybrids and their parents no other plants, &c., may be exhibited on this day.

MEETINGS.

(*Tuesday, July* 11, *at Chiswick.*)

12 noon.	Fruit, Floral, and Orchid Committees meet.
12.45.	The President of the Society, Sir Trevor Lawrence, Bart., will receive the Invited Members of the Conference.
1 P.M.	Luncheon.
2.15 P.M.	Conference on Hybridisation and Cross-breeding.
5 P.M.	Conference will adjourn.
6.0 for 6.30 P.M.	The foreign members of the Conference will be entertained at dinner on the kind invitation of the Horticultural Club, under the presidency of Sir John T. D. Llewelyn, Bart., M.P., at the Hotel Windsor, Victoria Street. Morning dress.

Wednesday, July 12, *in the Lindley Library* (117, *Victoria Street, S.W.*).

2.15 P.M.	Conference continued.
5.0 P.M.	Conference concludes.
6.30 for 7 P.M.	Banquet of the Society at the Whitehall Rooms, Hôtel Métropole. Evening Dress. All Fellows can, as far as space will permit, obtain tickets (price 21*s.* each), for ladies or gentlemen, by applying (with Cheque or Postal Order) to the Secretary, 117, Victoria Street, before July 1.

THE CONFERENCE.

The following arrangements are provisional, and subject to alteration :—

Tuesday, July 11, *at Chiswick, at* 2.15 P.M.

1, Introductory observations (Dr. Maxwell Masters, F.R.S., London, Chairman) ; 2, Hybridisation and cross-breeding as a method of scientific investigation (W. Bateson, Esq., M.A., F.R.S., Cambridge) ; 3, Hybridisation—its successes, its failures* (The Rev. Professor Geo. Henslow, M.A., V.M.H., London) ; 4, The stability of hybrids (Professor Hugo de Vries, Amsterdam) ; 5, Progress of hybridisation in the United States of America (Professor L. H. Bailey, Cornell University, Ithaca, U.S.A.).

Wednesday, July 12, *at* 117, *Victoria Street, Westminster, at* 2.15 P.M.

1, Introductory observations (Dr. W. O. Focke, Bremen, Chairman) ; 2, The structure of certain new hybrids (Passiflora, Albuca, Ribes, Begonia, &c.) ; with lantern demonstration (Professor J. H. Wilson, M.D., F.R.S.E., St. Andrew's, N.B.) ; 3, Hybrid and cross-bred Orchids (Norman Cookson, Esq., F.R.H.S., Wylam-on-Tyne) ; 4, Hybrid and cross-bred garden plants (M. Lemoine, F.R.H.S., Nancy) ; 5, Cross-bred bulbous plants (Heer S. A. De Graaff, F.R.H.S., Leyden) ; 6, Cross-bred Caladiums (M. Bleu, F.R.H.S., Paris) ; 7, Hybrid and cross-bred fruits (Luther Burbank, San Rosa, California, U.S.A. ; T. Francis Rivers, Esq., V.M.H., Sawbridgeworth) ; 8, Cross-bred vegetables (M. Henry L. de Vilmorin, F.R.H.S., Verrières) ; 9, Hybrid or cross-bred Irises, Begonias, Chrysanthemums, Cinerarias, Rhododendrons, Clematis, Fuchsias, Violas, Gladiolus, &c. (Dr. Michael Foster, Sec. R.S. ; M. Crozy, Messrs. J. Laing, V.M.H. ; Chas. E. Shea, W. J. James, F. G. Waterer, Harry J. Veitch, A. G. Jackman, R. Lye, G. Yeld, J. Heal, V.M.H. ; V. Lemoine, and Dr. Stuart have been invited to supply short papers on these subjects.

The selection of the Papers to be read at the Meetings and their order must be determined at the time, and will be left to the discretion of the Chairman and Committee ; but all the Papers will be printed in full in the Society's official report of the Conference.

Those gentlemen who are unable to attend the Conference in person are requested to furnish brief abstracts of their communications, to be read at one or other of the Meetings.

All MSS. in a foreign language should be sent to the Secretary (with a short abstract) at least ten days before the Conference, that they may be translated in readiness.

In order that accurate results may be arrived at, and to facilitate comparisons and deductions, a card will be supplied to all exhibitors on application, which it is requested may be carefully filled up with all the necessary details. When either the seed or pollen parents, or both, are themselves cross-bred, it is particularly requested that the pedigree may be given through as many generations of ancestors as possible. Exhibitors are most earnestly requested to apply for their cards beforehand, and to fill them up accurately and legibly, as the utility of the Conference will greatly depend on their so doing. Each separate plant should be entered on a separate card, so as to avoid confusion —only one plant on one card.

Raisers who will be kind enough to send plants or cuttings of hybrids to be grown at Chiswick in readiness for the Conference, will receive the best thanks of the Council, and of all interested in the matter.

The Surveyors' Institution.—The next Ordinary General Meeting will be held on Monday, January 23, 1899, when a Paper will be read by Mr. Edward Boyle, Q.C., on the "Rating of Collieries." The Chair will be taken at 8 o'Clock. The attention of the members is specially called to the fact that the rooms of the Institution are open daily, and are available for reference to the library, for arbitrations, writing, appointments, or other business purposes. Members who are graduates of any of the recognised universities of the United Kingdom are requested to intimate the fact to the Secretary of the Institution, in order that the same may be indicated in the next issue of the list of members. It is particularly requested that the members who have not already signed the register will take the opportunity of doing so when they happen to be at the Institution or in its neighbourhood. New members are required by the Bye-Laws to sign the register at the first Ordinary General Meeting at which they are present after their election.

M. Van Tieghem has been elected President of the Académie des Sciences for the present year.

Jadoo Fibre.—Colonel Halford Thompson, chairman of "Jadoo, Limited," has received from M. R. de Merona, Château de Begorée, Margaux, France, a letter, from which the following is an extract :—"I have to-day examined, at Begorée, old Vines, some completely, others partially, grown with Jadoo. The Jadoo is full of new rootlets, leaving no doubt but that the manuring has been highly successful. In those plants partially treated with it the result is obvious ; on the one side of the Vine Jadoo was placed, on the other none was used. The soil on the Jadoo side is full of rootlets, and there are not any on the other. I have removed, and enclose you two or three pieces of the fibre enclosing rootlets.

Société Française des Chrysanthémistes.—The Congress of the French Chrysanthemum Society will be held in November next at Lyons.

"**Rhodora**" is the title of a new journal published at Boston, Mass. (740, Exchange Buildings). It is to be devoted almost exclusively to the publication and information of various kinds relating to the plants of the New England States, more especially to their topographical distribution. Being intended mainly for local use, we suppose we must not protest against such names as Rattle-snake Plantain, which is altogether misleading, and surely not easier to write than Goodyera tesselata. Two plates accompany this number, the one giving illustrations of three species of Goodyera, the other of an equal number of species of Lactuca.

Fruit Notes: Cape Fruit Supplies.—Our interested readers will remember that the first consignment of Cape fruit for the season last year arrived here on Feb. 7 ; we learn, on application to the import manager of the Union Royal Mail Steamship Company, that the first consignment for the current season may be expected on or about the same date. We sincerely trust that proper care may be taken over the cutting or picking, and packing of the fruit intended for the English market ; in previous seasons there was much reason for regretting the lack of proper precautions.

Winter Aconite and Other Flowers.—In response to Mr. Mawley's enquiry as to the date of flowering of this species, we have received the following particulars :—Rev. Canon Ellacombe, Bitton, writes, under date January 14, that he noticed the first flowers expanding on that day. Erica herbacea, Cyclamen Coum, Chimonanthus fragrans, Crocus Imperati were in bloom, and Azara microphylla will shortly be in flower. Mr. R. Lindsay, Murrayfield, Midlothian, gives January 9 as the date when the Winter Aconite was in full bloom. The Dowager Viscountess Hood, Barton, Seagrave, Kettering, states that she first observed flowers of the Winter Aconite on January 10. Several other communications on this subject will be found on p. 43.

Transplanting a Cedar.—The *Daily Graphic* of the 17th inst. has an illustration showing the removal of a Cedar at Southsea. The tree is estimated to be 100 years old. It is 30 feet in height, and 36 feet in the spread of its branches. A hole, 18 feet square, and 7 feet deep, was dug round the trunk, the actual size of which, with the roots and a good thickness of mould, was 10 feet 6 inches by 9 feet 6 inches, and 3 feet 6 inches deep. After the hole was dug, planking secured by iron-belting was built round, and a timber cradle gradually placed underneath. The whole was then lifted in position for the trolly by five screw and two hydraulic-jacks. The total weight was about 22½ tons, and it took a traction-engine to draw the trolly along. The cost of removing will probably amount to about £100.

Vienna.—Dr. Wettstein, formerly of Prague, has been appointed Professor of Botany and Director of the Botanic Gardens in the University of Vienna.

Leaf-action in Terrestrial Orchids.—The *Comptes Rendus* for December 5, 1898, contains a note by M. Ed. Griffon on experiments made at the Laboratory of Vegetable Biology at Fontainebleau, under the superintendence of M. Gaston Bonnier. The experiments in question bore reference to the work done in the chlorophyll in terrestrial Orchids, and especially in Limodorum abortivum :—"It is known that a certain number of terrestrial Orchids have short, swollen, coral-like roots, in each of the cortical cells of which is enclosed a small cushion-like mass of fungous spawn-threads. M. Frank has given to these peculiar roots, which are found with the same characteristics in Ericaceæ, and with different characteristics in Conifers and Cupuliferæ, the name of 'mycorhizas.' This authority considers this association of a root and a fungous spawn or mycelium as an illustration of co-operation or 'symbiosis,' and not of parasitism. According to him, the fungus receives from its host substances which it is unable to elaborate, such as hydrocarbons, sugars, starch, &c. ; and, on the other hand, it furnishes it with water and nitrogenous matter, which it derives from the humus. Orchids with green foliage, and unprovided with 'mycorhiza,' probably derive all their carbon from the air. These plants are entirely self-sufficient, and have no need of humus ; Epipactis latifolia, often found in sandy mud at the sides of roads, comes under this category. Other Orchids with green foliage, but provided with 'mycorhizas,' such as the different species of the genus Orchis, are, if M. Frank's theory is correct, partly saprophytes—that is to say, that they live to a certain extent at the expense of the humus; but their green portions, while giving off a considerable quantity of oxygen when exposed to light, do not provide the plant with all the carbon necessary to it. But no experiment has as yet proved this. M. Griffon wished to see decisively if some of the plants of this class in which the saprophytism appears to be doubtful, would not exhibit gaseous changes in the light of such a nature as to disclose the part played by the mycorhizas in the assimilation of carbon. The very curious results obtained by M. Bonnier in the Rhinanthaceæ induced M. Griffon to experiment in this direction. It is, indeed, now known that some green plants, such as Euphrasia or Pedicularis, do not emit oxygen when exposed to light, and are therefore, perforce, parasites." The author draws the following conclusions:—"1. As regards the assimilation of carbon, terrestrial Orchids show all intermediate conditions, from green species, lacking in mycorhiza, such as Epipactis, which draw all their carbon from the air, and colourless species, such as Neottia, Corallorhiza, which are wholly saprophytes, and the roots of which, existing in symbiosis with fungous mycelia, are capable of drawing from humus the matters necessary for nutrition. 2. Limodorum, in spite of its richness in chlorophyll, must be reckoned as a saprophyte, because of the imperfect diffusion of the chloroleucites, and perhaps, also, the special nature of the green pigment; this plant decomposes but little carbonic acid, and its respiration is always noticeably superior to its assimilation."

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* Professor Henslow will be most grateful to anyone who will send him full detailed particulars of attempted hybridisations *which have failed.*—Address, the Rev. Professor Geo. Henslow, 80, Holland Park, W.

CHAMBRE SYNDICALE OF GHENT.—At the last meeting on the 8th inst., a Certificate of Merit for Epidendrum Endresio-Wallisii was awarded to M. L. De Smet Duvivier, and a Cultural Certificate for Caraguata cardinalis to M. A. Van Hecke.

"**FREAKS.**"—A short time since we were told by the daily papers that the "freaks" now exhibiting at Barnum's show held at least two meetings to protest against the application to them what they consider an objectionable term. The proceedings of those meetings would require the pen of a Dickens to narrate. Enough for us, if we be allowed to express our entire sympathy with these teratological illustrations—we hardly know what English word to employ which shall convey our meaning without also being liable to an interpretation that we should be unwilling to endorse. The fact is, that the application of such words as freaks, prodigies, sports, caprices, monsters, and the like is altogether inappropriate. There is nothing freakish or capricious in Nature. All is orderly, methodic, adaptive, responsive to cause, purposeful. It is our imperfect perception alone which makes us see breaches of law when there are none. We are reminded of these matters by the kindness of the authorities of the Royal Gardens, Kew, who have obliged us by forwarding some interesting flowers of Cyclamen. The leading feature of these flowers is the development of the sepals into full-sized leaves, forming a ring of leaves around the corolla, such as is often met with in the Chinese Primrose. It is obvious, from these specimens, that the ordinary sepals of the Cyclamen represent the petiolar part of the leaf only, the blade or laminar portion not being developed. We can easily imagine that the presence of food-making leaves in the immediate vicinity of the ripening ovules, which make such heavy requisitions on the food supply, might be advantageous. If so, the tendency to leafy development seen in these Cyclamens would be perpetuated, and in time a new "race" will be developed. A section of the scape showed not a central ring of vascular tissue, but a pentagonal stele.

HORTICULTURAL CLUB.—The usual monthly dinner and conversazione took place on Tuesday last, 17th inst.; the chair was occupied by Mr. Harry J. Veitch, and there were present besides, the Rev. W. Wilks, the Rev. J. H. Pemberton, Messrs Charles E. Shea, George Monro, James H. Veitch, George Bunyard, C. T. Druery, and others. The discussion was opened by Mr. Charles E. Shea with an interesting paper entitled "A chat about Chrysanthemums;" many points of much value were brought forward, and there seemed to be an unanimous revolt against the race for size which now marks the Chrysanthemum. Most of the members took part in the discussion which followed over the paper, and many interesting statements were made. A hearty vote of thanks was accorded to Mr. Shea. It was announced by the Secretary that the annual meeting would be held on February 14, when the chair will be taken by Sir John Llewelyn, Bt., M.P. (chairman of the Club), and ladies would be specially invited to attend.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The sixtieth annual general meeting of the subscribers to this Institution was held on Thursday last at "Simpson's," Strand, London, H. J. Veitch, Esq., in the Chair. The report of the Committee, and the accounts for the year were adopted with unanimity and satisfaction. This was followed by the election of officers for 1899, and the election by ballot of candidates to become pensioners on the Fund. There were seventeen candidates elected, as against nineteen last year. Upon the recommendation of the Committee, five of these were unanimously placed upon the Pension list under Rule III., s. 5, without the trouble or expense of an election. Their names were as follows:—

JOHN COLLINS, Bockhampton, Dorchester, aged 80, annual subscriber of £1 1s. for 41 years.

CHARLES GOODALL, Cheetham Hill Road, Staleybridge, aged 64, annual subscriber of £1 1s. for 20 years, also a life-member.

WILLIAM KIDD, New Street, St. Neots, aged 81, annual subscriber of £1 1s. for 17 years.

JONATHAN SQUIBBS, New Oxted, Surrey, aged 67, annual subscriber of £1 1s. for 17 years, also a life-member.

GEORGE YEARNSLEY, Silver Hill, St. Leonard's-on-Sea, aged 68, life-member for 35 years.

A ballot took place for the remaining twelve, and below are the names of the successful candidates. The eight first mentioned have been subscribers to the Institution, and the remaining four were non-subscribers.

ALFRED BARNFIELD.
ANNIE HATCH.
ALEXANDER LEE.
JAMES PLEVY.
JOSEPH SHEARN.
GEO. STAPLES.
EMMA WOODWARD.
CAROLINE WOOD.
JOHN AKEHURST.
THOS. CAWLEY.
GEO. CRAGG.
SARAH ANN SIMS.

The annual friendly supper is being held under the Chairmanship of G. Monro, Esq., as these pages are in the press.

HOME CORRESPONDENCE.

EUCALYPTUS GLOBULUS IN THE OPEN.—The readers of the *Gardeners' Chronicle* should be glad of the information respecting this tree afforded by "J. A." on p. 28. If a tree be killed to the ground by 18° of frost after being planted thirteen years, each must decide for himself whether it is a tree worth planting. Certainly it grows very freely and makes a fine tree in a few seasons, and then comes a hard frost and it is killed to the ground. I have only known E. globulus to flower in the open air in our maritime counties. *A. R. Pearce.*

—— On p. 19 of a recent issue, you ask for the present height of the Eucalyptus coccifera at Powderham Castle, several times figured in the *Gardeners' Chronicle*. In my notes on Powderham, published on October 22, 1898, p. 299, full reference will be found to this grand specimen [70 feet in height], also to the peculiar manner in which it sheds its bark. Several specimens are also to be met with at Abbotsbury, Dorsetshire, but these are far less in size than the Powderham specimen. *W. Swan.*

SPIRÆA DISCOLOR (ARIÆFOLIA).—The beauty of this plant when in flower is well shown in the illustration, p. 21, and a sunny situation is recommended in the accompanying letterpress. I would advise intending planters to place it in an airy position, and where it gets shade from the sun. There are many specimens at Belvoir in various positions, and all lose the whiteness of their flowers in two or three days after they expand, except one plant, which grows where the sunshine does not reach it, which keeps in good condition three times as long as the others that grow in the sunshine. It is a perfectly hardy plant, and evidently likes moisture, doing well in our cold clay soil. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

INCREASE OF SHOW EXHIBITS.—Your correspondent "A. J. L." seems to have a somewhat extraordinary preference for bulk. Generally there has been too much room for complaint, that exhibits, especially in vegetables, were too large in use, and now he wants yet more. He has little mercy for the exhibitor. Take Onions, bulbs of which now range from 2½ to 3 lb. each in weight, a dozen of these now average over 30 lb. "A. J. L." would like to make the weight about 50 lb. Potatos, Carrots, Beetroots, and Cauliflowers, are heavy, and yet he is for increasing the weight for transit to and from shows, 50 per cent. And after all, beyond presenting exhibits in the plan of greengrocers shops, what would be gained? Of course, exhibitions should be made attractive, but mere quantity does little in that direction. Far more attractive is quality, and just as six of any one thing selected from eighteen, gives the highwater-mark of excellence; twelve of the same comes a few points lower in average excellence, and the entire eighteen shows a still greater reduction. Generally, all descriptions of fruits and vegetables are well represented in the ordinary dishes or quantities presented. Fifty pods of Peas, or a dozen Tomatos, gives just as good a representation in either case as would quantities doubled. A collection of a dozen kinds of vegetables as now ordinarily presented, inclusive of basket and packing material, presents a formidable weight, and would, if doubled in bulk, be only compensated for by double prices. But the public in seeing greater bulk would gain nothing. If such a proposition were enforced, it would do much to kill competitions, which is already to the ordinary exhibitor sufficiently exacting or burdensome. *A. D.*

WINTER ACONITES AND OTHER FLOWERS.—Observing on p. 26 of last week's issue a question concerning the flowering of Winter Aconites, I write to say that generally after a wet and warm autumn, such as the last, late winter bulbs in Edge gardens are very precocious being often forwarder than they are in the south of England in January, though by March they are overtaken by the warmer counties. I make casual but not regular notes on the weather and first appearance of flowers. The average time at which Winter Aconites break the surface is New Year's day, and if there is no hard frost, many are in flower in a week or ten days. In 1896, Jan. 13, I find an entry, "Crocus Imperati generally out; also many Anemone blanda, and some Aconites and Snowdrops. Thrushes singing and wood-pigeons cooing." In 1897, Jan. 23—"Aconites out before the New Year, and Snowdrops showing white; Narcissus minimus out middle of February" (about its usual date). 1897, Dec. 17—"a warm sunny day, nearly 100 flowers of Crocus Imperati fully open; also many Anemone blanda, also Cyclamen Coum. 1898: January 5.—Aconite abundantly out; also, Anemone blanda, and Crocus Imperati, at best. January 21.—Scarlet Anemone (hortensis) plentiful, Crocus Imperati nearly over, Galanthus Imperati fully out; Narcissus minimus in flower. 1899.—The same flowers are nearly a fortnight later than last year. Aconite broke the ground before New Year's Day, and are now, on January 16, plentifully out; also, Anemone blanda, is very forward, and in full flower; Crocus Imperati, many in flower. No Scarlet Anemones yet. Oriental Hellebores very forward. Some plants in sheltered spots are in full flower. Crocus Sieberi out. Thrushes have been as noisy for ten days as in April. *C. Wolley Dod, Edge Hall, Malpas.*

—— There are large quantities of this plant at Belvoir in various places, and no flowers have as yet appeared on them—only one tiny speck of yellow was visible yesterday (January 13). On looking through my old note-books, I note that January 15, 1896, and January 9, 1898, are the dates when the first flowers appeared in those years;

but it will be quite as late as the 20th this year before I shall be enabled to report the opening of the flowers. I notice several other early flowers this season are later than usual here, and this lateness is not due to cold, as up to the present date the season has been exceptionally mild; but it may be attributed to the very dry time we had in September and October. *W. H. Divers.*

—— I have seen Winter Aconites in bloom, not expanded, in a spot shaded from south to west, in a warm enclosed garden they are only showing; last year, one was gathered on January 7. *Thos. Taylor, Beech Holme, Bocking, Braintree, Jan.* 15, 1899.

—— My neighbour tells me he had the Aconite blooming in his garden on the 5th inst. *F. T. Tayler, Little Baddow Rectory, Chelmsford, January* 17, 1899.

—— Referring to the paragraph in yours of the 14th inst., the first yellow bud of Winter Aconite was seen yesterday in my small garden; it is on a drier slope than the part they usually appear first. I have a few Snowdrops in garden, plenty of fine ones in window-boxes that have been out a fortnight, some going off. A few Polyanthus in garden, and red buds of Pyrus japonica showing. *Tilson Lee.*

—— I had been looking for this little flower to make its appearance in various parts of the grounds here. I have, to-day, January 18, made a rather minute survey in the various places which in some seasons by this time have been sheets of yellow; and I have also found some old lists of flowers, which, in a former employer's day, we used to send up to London weekly. I find, January 19, 1887, Aconites, five large bunches; January 13, 1890, two large bunches; but to-day I cannot discover flower or foliage. Has the dry autumn something to do with it? *J. Batters, Gillingham, Norfolk.*

—— Although not yet open to-day, January 16, the Winter Aconite is not later than usual here. The first flowers began to show above the ground about New Year's Day. It usually blooms with me from the last week in January to the second week of February should the weather prove open. *S. Arnott, Carsethorne, by Dumfries, N.B.*

MUSHROOMS IN PASTURES.—In answer to Mr. Kneller's communication on this subject, I may be allowed to state that having had sixteen years and more experience in Mushroom growing, I think I can give him some explanation of the circumstance. Firstly, if his pasture has had Mushrooms growing on it for 100 years, the spawn will have become exhausted, and he would do well if he sprinkled some sharp road-sand over the land. Secondly, I think that he is mistaken about the older portion of the park giving the most Mushrooms. He will find the piece which has been laid down ten years will afford magnificent crops for many years to come, especially if cows are pastured on it, as of course he will know that artificially-made spawn consists of cow-dung and sand—or it should be. As regards the meadow which he has spawned, it is not likely ever to do any good, my experience teaching me that artificial spawn should have a little warmth when started, otherwise its germinating power gets killed. I always break the cake when spawning a bed. I would persuade him the next time he lays spawn in the land, to carry out the operation in the hottest part of the summer, and keep the land well moistened, Mushrooms doing best in mild, moist weather, such as we are having this winter I grow Mushrooms indoors and on beds outside, and have no failures. *A. S. Knight.*

GRAPE JUDGING.—It will be a source of satisfaction to those who take an interest in exhibiting and judging, to see that the relative value of exhibits is receiving a degree of attention, which may ultimately lead to a proper settlement of the question. I notice in your last issue (p. 27) a few remarks from "A. D.," one of which, to me, is not very clear. "A. D." says, "The judges can, even with fixed maximums, vary the points, both according to appearance and known quality." If the various maximums be fixed with scope sufficient to meet all claims, there would be no need to change or vary them, a conclusion which "A. D." seems to support in the last words of the sentence; thus: "they (the maximums) also indicate points beyond which, in making awards, the judges cannot go." I concur with this statement, but consider that a wider range of opinion is necessary in adjusting these maximum standards than that of two or three judges before they begin operations. Any endeavour to fix standards or formulate a system of judging would be wasted labour, if they could be varied according to the taste of the individual. "A. D." also says, "Maximums indicate relative merit of variety, if first-rate." There seems to be a slight mixture of ideas here; relative merit is generally understood to mean the qualities of an article naturally inherent, which should not change; while cultural merit signifies the properties imparted by art, which varies with the skill of the cultivator. The two elements being distinct, should be kept separate, and a maximum properly adjusted for both, with sufficient gradation by which all differences could be recorded. Mr. Kirk on the same page raised another matter in connection with judging, and depreciates the necessity for decorating Grapes, while he ventures to prophecy that bad things will happen in consequence. I assume there will be no decorations insisted upon in connection with the forthcoming Grape competition; but I expect that the Grapes will be adjudged entirely on their own merits. If decoration were to be a strong element in the competitions, I would simply put my best Grapes into classes where merit would not be divided, and my next best I would risk being overweighted by decorations. After expressing various doubts and difficulties, which probably mean but little, Mr. Kirk animadverts on dessert table-decoration with an air of disgust. In my opinion, there is nothing more pretty or attractive—leaving aside utility—than an artistically and tastefully-displayed dessert-table. Let such, then, be encouraged at shows, but as before said, great care should be taken in fixing the maximums for culture, quality, and taste in the matter of arrangement. If high-class fruit be the primary object, let the maximum be high; if flowers and arrangement are the principal features desired, then the fruit will occupy a subordinate place. If I entered a competition, with the issues plainly stated, and only came out second best, although I looked upon fruit myself as of major importance, I would simply "grin and bear;" or offer a mild protest to the proper authorities, which would probably not be entertained. When conditions of adjudication are laid before the judges, it would be a dereliction of duty not to adhere to them. *Ayrshire Lad.*

RELATIVE VALUE OF GRAPES IN COMPETITION.—As mentioned in my last letter, I now submit for the consideration of interested readers a scale of relative value for most of the varieties of Grapes worth growing at the present time. This value is calculated and shown by the decimal system as being the one best adapted for recording the most minute shades of difference between the sorts. The cultural value again is reckoned by units (but not shown), five being the maximum for a perfect bunch. This is a fair proportion to strike between the two elements, and corresponds to the balance given by the authority quoted in my last letter:—

TWENTY-FOUR VARIETIES OF GRAPES, TWELVE BLACK AND TWELVE WHITE.

White.	Relative value.	*Black.*	Relative value.
Muscat of Alexandria ...	1·2	Muscat Hamburgh ...	1·0
Canon Hall Muscat ...	1·01	Mrs. Pince	1·0
Bowood Muscat ...	1·0	Madresfield Court ...	1·0
Mrs. Pearson	1·0	Appley Towers... ...	0·9
Duke of Buccleuch ...	0·9	Black Hamburgh ...	0·9
Lady Hutt	0·9	Lady Downes'	0·8
Buckland Sweetwater .	0·8	Gros Colman	0·8
Foster's Seedling ...	0·8	Gros Guillaume ..	0·8
Golden Queen	0·7	Alicante...	0·7
Tokay	0·7	Gros Maroc	0·7
Trebbiano	0·5	Alnwick Seedling ...	0·6
Raisin de Calabre ..	0·5	West St. Peters ...	0·6

It will be observed the above estimate is not based on the property of flavour alone, although that element predominates, but on all the qualities which characterise good useful Grapes, and contained in the words quality and appearance. Since despatching my last, I observe a letter from "H. W. Ward" (p. 474), in which the relative value of certain varieties is fairly stated, but which in practice would not work very satisfactorily, unless the value of the two properties were placed in separate columns. Otherwise, the judges would get confused among vulgar fractions when competition is close, and where the smallest difference has to be recorded. The relative value of 1½ points in 6 between Gros Colman and Muscat Hamburgh may also appear to some excessive. [Canon Hall Muscat, being a variety of Muscat of Alexandria, should not be included in a collection of varieties.] In framing a graduated scale of value, the most important factor, namely, the skill of the horticulturist, should be carefully guarded, and as there are slight shades of difference in quality among the varieties, provision should be made for registering the smallest degree. Everyone will agree with your correspondent's remarks regarding the preference shown to large against smaller bunches, other points being equal; but shape should not weigh in importance, but due regard should be paid to the natural form of the variety. *Ayrshire Lad.*

CHRYSANTHEMUMS.—In Mr. Edwards' list of Chrysanthemums at p. 27, of the last issue of the *Gardeners' Chronicle*, he recommends some to be grown as bushes. Now, I have grown most varieties as they have been sent out for more than a dozen years past for the purpose of getting big blooms, and passing on all that I thought suitable to be tried as bushes. Of these we usually grow from eighty to one hundred plants for cutting from, and sometimes we pinch them and get nice medium-sized blooms, and at other times I have allowed them to grow on to the terminal bud for a mass of bloom. My favourites now are:—

WHITES.	YELLOWS.
Avalanche	Phœbus (old)
Souvenir de P. Ami	,, (new)
Niveum	Edwin Beckett
Madame Lacroix	W. H. Lincoln
Mrs. J. J. Lewis	Pride of Ryecroft
Lady Canning	Charles Curtis
PINKS.	DARKS.
Margot	John Shrimpton
Lady Randolph	E. Molyneux
Eda Prass	Wm. Holmes
James Bidencope	Mathew Hodgson
Pride of Madford	Milano
William Tricker	Val d'Andorre

I can recommend the above list to all beginners, as they are free growers and sure constant bloomers. *A. Haggart.*

BEGONIA GLOIRE DE LORRAINE.—This plant is, I understand, so far asexual, that it produces only male or barren flowers, hence it can be propagated only by division or cuttings. But there seem to be exceptions to every rule, as I recently saw on a small plant at Chiswick a seed-pod of the ordinary angular form, the product of a female flower, which had been fertilised with pollen from the flower of a small white winter-blooming kind. It will be interesting to learn in time what is the product. Gloire de Lorraine has such excellent habit, and is so wonderfully floriferous as a winter pot-plant, that it is difficult to avoid wishing for its duplicate as a summer-bedding plant. Certainly for such purpose stouter and stiffer stems would be useful, but if the flowers are relative to those of the tuberous kinds, small, they are borne in such great profusion that most beautiful floral objects are furnished. To obtain such a summer variety should be the object of raisers. *A. D.*

CLEANING TOMATO SEED.—I have watched with interest the different articles appearing in your columns on the best means of getting through this tedious task, and have long been under the impression that there must be some more practical method than those employed by your correspondents and myself. I had exceptional results from a new variety of outdoor Tomato the last summer, and I was naturally anxious to save my own seed. I had but a small idea of the methods adopted in practice, so I decided to try two different plans. One lot I put through a process almost identical with that advised by Mr. J. S. Upex, in an article on p. 28 of your last week's issue, namely, washing and squeezing through muslin. As another test I squeezed the pulp on to sheets of clean glass, and pasted it over very thinly, so that the seeds barely touched each other. After they had been near the roof in a dry house for some days they were separated with a pocket-knife; they were not clean, though, and I found this plan considerably more difficult, and more likely to injure the seeds, than the "washing system." I had some doubts as to whether the latter plan would be detrimental to the quality of the seeds, so decided to test them. I put equal quantities of each in separate pots, and grew for twenty-eight days. The result was very satisfactory; for the one was identical with the other. It must not be lost sight of, however, that my test was made only a few months after the drying of the seed. Whether that which has undergone the "washing process" would be reduced in quality if kept for several seasons I cannot say; but knowing Mr. S. Castle (referred to last week) to be an excellent cultivator, I am convinced that he would not condemn "washed seed" without having reasons for doing so. Probably Mr. Castle will see this and other articles, and kindly enlighten us. *A. F. Acton, "Mon Repos," Dover, Kent.*

LAPAGERIA.

The illustration (fig. 14) of a fine spray of this most useful climbing plant was obligingly furnished to us by C. T. Lawrence, Esq. It shows well the free-flowering character of the plant, and when grown at Burford Lodge, we may be sure that the plant is placed under the most favourable circumstances.

MARKET GARDENING IN THE CHANNEL ISLES.

(Continued from p. 30.)

The Caledonian Nursery, Guernsey.—At this establishment there is a notable departure from the class of goods usually met with at so many of the other nurseries on this island. The growers for market devote roomy houses chiefly to the production of some three or four articles, viz., Grapes, Tomatos, Beans, and early Potatos, so that but little in the way of decorative plants ever comes in their way, and, indeed, there is no need! There is a vast difference in growing simply these things for certain disposal, and the cultivation of choice plants and shrubs that are much longer in coming to a saleable size, and whose disposal is not so rapidly consummated. The Caledonian Nursery is a compendium of all that is choice and rare in the way of out-door shrubs and trees, and the lover of novelties may come and be interested in seeing fine specimens such as cannot be found in the open on any part of the mainland except in a few highly favoured spots in Dorsetshire, Devonshire, and Cornwall. Almost as soon as the grounds are entered we are face to face with a grand specimen of Erythrina Crus-galli, with branches 8 feet in length, and stem as thick as one's arm. The singular-looking coral-coloured pea flowers were numerous, and would be in good condition for a long period of time. How different to see this plant in this guise to seeing it treated as an intermediate-house plant for six months of the year; here, it is simply let alone, or just pruned hard in. Close by was a number of Crinum Powelli alba, raised from seed and planted in beds. They had made good growth, and many were in flower.

Entering some of the glass-houses we noticed a capital lot of middling-sized Palms grown for house decoration, and associated with them a quantity of Ferns for similar purposes. Houses, too, of single and double flowered Begonias, of Cannas flowering with remarkable freedom—these both indoors and out-of-doors; zonals also in good varieties, and nicely grown.

Guernsey Lilies.—Among plants grown under glass, Messrs. Smith are famous for their Nerines—Guernsey Lilies. My visit was made too early for me to see them in flower, the majority being still dormant. Doubtless the display made by these bulbs will be of marvellous beauty. A thousand pots of Nerines! it seems incredible; yet there they are, and additions are constantly being made to the stock of them. Great care is exercised in regard to the shifting or potting of these plants; this operation is performed as seldom as possible. Pots of, say, 5, 6, or 8 inches are used for the bulbs, according to the mass to be potted, and when the pots are filled with roots, and the bulbs crowded well upon the top, during the flowering and growing time, then the application of some kind of manure answers admirably; while during the long resting period no such assistance is required. Such species and varieties as N. Fothergilli major, Manselli, angustifolia, Planti, &c., are under cultivation; and besides these there are hosts of seedlings, many of which have already flowered, and proved to be beautiful, and worthy of further cultivation. The stock of these, however, is yet too limited to allow any of them to be disposed of at present. Among other Nerines, coruscans major has been crossed with N. flexuosa, and N. filifolia with N. coruscans major; in fact, so numerous are the varieties represented, that they need to be studied in a very full and careful manner. Passing outside, we came to grand masses of Bignonia radicans, then densely covered with its tubular orange-scarlet flowers, whose outer calyx has the look and texture of leather. A plant of Mandevilla suaveolens covers a large area of wall, and it is perfectly hardy. Plants of Clianthus magnificus are also very strong; the flower is somewhat lighter in colour than the old C. puniceus.

Dracænas.—Then some Dracænas, which must at one time have been trees, so large were the boles, 4 to 5 feet in girth at 1 foot up from the ground. These boles had been cut down during the severe winter three years ago, and clusters of young shoots 10 feet high have sprung up from them, so that clumps of eight to a dozen stems now take the place of a single stem. But what models these side-shoots were! stout, with broad leaves, the colour of which was a deep purplish-green. How grand these would look in pots! and a hundred of them exhibited at the Temple, either in groups or single specimens. A display might be made by such means at many an exhibition that would, I am sure, be highly appreciated, and add much to the scenic effect. Edwardsia microphylla is represented by a large plant fastened to a wall; this particular specimen seldom flowers, although not far away another one does so regularly.

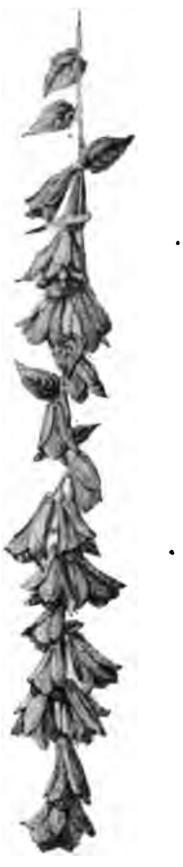


Fig. 14.—Lapageria rosea, in the garden of Sir Trevor Lawrence.

(From a photograph by C. T. Lawrence, Esq.)

Belladonna Lilies.—And then we came to these; and what a display they made! one can scarcely imagine what such beds of these bulbs would look like—but here they were, and the sight was a glorious one. A most beautiful variety, Amaryllis Belladonna purpurascens maximus, as its name implies, has large flowers of an intensely dark colour.

The Bamboos.—I would say of these that the species are so numerous, the health so perfect, the dimensions of many as regards height and size so great, that one need have a measuring-rod always in hand, and spend an entire day among them. Arundinaria nobilis is worthy of special mention, as well as Bambusa palmata; Arundinaria Falconeri, A. erecta Hindsii, Phyllostachys castillionis, and Bambusa flexuosa, a close grower, of which a plant was noted 6 feet in height. Associated with these were some twenty species and varieties, and the stock of them is being very assiduously increased; in fact, these Bamboos are treated similarly to Conifers in other nurseries, and beds and whole quarters are devoted to their cultivation, constant propagation, replanting, &c., and then wide dispersion all over the country. And then, when planted and established, how different is the effect, and how beautiful! Bamboos are now in the front rank as decorative plants, and where they will stand the winter they will be planted more commonly. A large Macartney Rose was covered with its single white flowers, looking interesting among so many novelties. Overhead the new Vitis Coignetiæ had run up to a great height among some trees, its leaves were still quite green.

Shrubs and Trees.—To visit the different parts of the nursery, and note the host of choice plants and shrubs, was no mean task; and it must suffice if I touch upon a few only—Acacia asparagoides, a very fine specimen, was full of flower-buds that will open in the spring; Lomatia pinnatifida is a beautiful shrub, whose Davallia-like leaves impart to it a singular beauty; Dimorphanthus manchuricus and Weigela hortensis nivea come next into view, and then fine specimens of Magnolia stellata, whose flowers in early spring are so much admired; Magnolia Lenne, a very large tree, one of the deciduous forms, whose Tulip-like flowers are of a bright purple colour outside; M. Halliana, M. grandiflora, &c. Danea racemosa, the Alexandrine Laurel that has stood out for many years; Poinciana Gilliesii in capital form, and of much vigour. The Olearias, nitida, dentata, and macrodonta, are grown close together for the sake of comparison, and O. argyrophylla is also near by, its beautiful leaves silvery beneath, mark this as a very distinct-looking species. Plants of Embothrium coccineum were constantly passed, being trees, some of them 18 to 20 feet high. Pyrus Malus floribunda Scheideckeri was interesting, and the same may be said of Gymnocladus canadensis. Hedges and beds of Azalia indica alba, here called A. Ledifolia, divide many of the quarters in this portion, and in their season are a mass of flower. Of the greenhouse hybrid and Himalayan Rhododendrons, a large collection was remarked, and every species and variety was found in healthy examples, and Countess of Haddington, campylocarpum, barbatum, Falconeri, Lady A. Fitzwilliam, Mrs. Butler, fulgens, and Aucklandi, are but a few names of the many that were doing well.

A plant of Diospyros kaki, the celestial fruit of China, was remarked in fruit. Another singular plant observed was Panax ferox, whose spike-like leaves have a touch-me-not forbidding aspect. Fine bushy plants of the Camellia were noticed planted in beds; a pretty plant near them was Hypericum densiflorum covered with its small yellow flowers; and a plant of Cotoneaster horizontalis was covered with berries of a bright colour.

The Apples and Pears, pyramids and cordons, were in capital condition—and among Apples, American Wealthy holds a prominent place; and beside these, which occupy so much space, some 5000 Richardias are grown, and large numbers are being constantly disposed of. The Chrysanthemums were likewise a fine lot of plants, forming row after row of clean, healthy plants, some 8000 in all, plunged in beds to about half the depth of the pots. These were just 4 feet high, and were being grown for furnishing flowers for cutting. Beside these, which would be taken indoors, there were large breadths of planted-out Chrysanthemums, also for cutting. I have left but little space to say anything concerning the Daffodils, an important branch of trade, but one about which no more than an allusion can be made.

I noticed as I passed along that a part of a large field was being ploughed. Green manuring is practiced here which helps materially to enrich the soil, and prevent it becoming bulb-sick. It consists in sowing the land when the bulbs are lifted in the months of May or June fairly thickly with Buckwheat, which grows quickly. In September, when the plants are about 2 feet in height, and in flower, it is mown. The plough is then taken into the field, and a furrow made on one side, right through the piece; the bottom spit is thrown out with the spade, and a dressing of the green Buckwheat forked in all along the trench. The plough again comes along, and turns over the top on to the green dressing, and again the spades follow, turning up the bottom spit, and by this proceeding the roots, green crop and all, are buried well below the surface, and fresh soil is brought to the top. The ground is then carefully prepared, and the Daffodils are planted. The method answers admirably. Rye-grass has also been sown, and a good breadth was covered with a dense turf; and this piece of land will be treated in a similar manner. Mr. Smith expressed a wish that even a greater portion had been covered with Rye. To observe the tens of thousands of bulbs of choice varieties planted in breadth after breadth, to notice the heaps of bulbs in the sheds still waiting for grading and planting; and to watch the number of men and women engaged in this particular branch, afforded one a capital idea of the importance of the Daffodil industry. Naturally, one asks, What becomes of all the immense number of bulbs and of flowers? Well, the Channel steamers carry most of the flowers away, and a good number of the bulbs in the season. To watch the packing part of this business enterprise is interesting and suggestive. Of Freesias, the heaps of refracta alba and the size of the bulbs are both remarkable. This variety of Freesia alone is grown, and great pains are taken to keep the stock true from intermixture with the yellow form. In the other glass-houses I visited I will only say, that all of them were filled with various crops in a clean and vigorous state. The bulb and packing-sheds are scenes of bustling activity.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 10.—*Present:* Dr. M. T. Masters, in the chair and Mr. Veitch, Mr. Bennett-Poë, Dr. Müller, Dr. Russell, Rev. W. Wilks, Prof. Church, Mr. Michael, and Rev. G. Henslow, Hon. Sec.

Bigeneric Orchid.—Mr. Veitch exhibited a flowering plant of an Epi-Cattleya, Mrs. Jas. O'Brien; its male parent was Cattleya Bowringianum, and its female parent Epidendrum × O'Brienianum, the latter being from E. evectum × E. radicans. It has been stated that in these bigeners the result generally resembled the female parent almost entirely, but in this case there was a decided inclination towards Cattleya in the form of the lip and foliage.

Mildness of the Season.—Mr. Wilks brought a spray of Oak-leaves, still partially green, and mentioned that Blackberries had been lately gathered ripe—an unusual occurrence in early January.

Thuia gigantea (plicata) Barked.—Dr. Masters showed a stem which had been nearly stripped of its bark, exposing the central axis as an almost cylindrical rod. The young wood had made renewed efforts to surround the latter, which appeared to be dead. It was received from Mr. Croucher, of Auchstertyre, near Crieff.

GRAND YORKSHIRE GALA.

JANUARY 7.—The annual meeting of the life-members and guarantors of the Grand Yorkshire Gala was held on the above date at Harker's Hotel, Sir CHRISTOPHER MILWARD, Chairman of the Council, presiding.

In the course of his introductory address, the Chairman said that exactly twelve months had elapsed since their last annual meeting, and during the interval they had had to deplore the loss of their late chairman, Sir Joseph Terry. When that sad event took place, they did him the honour of electing him as Sir Joseph's successor. As chairman, he had to congratulate them on one of the most successful years experienced in the history of the Grand Yorkshire Gala. Proceeding, Sir Christopher proposed the election of the Lord Mayor as president for the ensuing year. Since the establishment of the Gala they had had the honour of the co-operation both of the Lord Mayor and Sheriffs; but it was seldom that they were able to elect to the presidency one so closely associated with the management of the Gala as the present Lord Mayor, who had served them well and faithfully as vice-chairman.

Mr. Ald. Foster, in seconding, remarked that one of the most pleasing features of the Gala was the fact that their principal citizens, the Lord Mayors, had always been associated with the undertaking in the capacity of president.

The motion was carried by acclamation.

The Lord Mayor, in reply, thanked the mover and seconder for their kind references to himself, and said he took an especial pride in the success of the Grand Yorkshire Gala.

The re-election of Sir Christopher Milward as chairman of the Council was moved by the Lord Mayor, and the Sheriff of York seconded the nomination. The resolution was adopted unanimously. The Chairman appropriately acknowledged his re-election.

On the proposition of Mr. G. Balmford, seconded by Mr. J. W. Craven, the Lord Mayor was re-elected vice-chairman.

Mr. Joseph Wilkinson was unanimously re-elected treasurer, Mr. C. W. Simmons secretary, and Messrs. Pearson and Taylor auditors.

Mr. T. G. Hodgson proposed that the sum of £650 be granted to the Floral Committee. The amount was the same as that granted last year, but he understood that the committee contemplated a revision of the schedule, which was not up-to-date.

The sum of £230 was granted for the musical arrangements. £120 for the firework displays, £60 for balloon ascents, and £175 for the entertainments. A special grant of £100 was made to the entertainment committee for the improvement ot the stage, and the provision of a proper proscenium.

Mr. Hugh Low, of the firm of Messrs. Hugh Low & Co., London, was elected a life-member. The Chairman, in submitting the proposition, commented on the fine exhibition of Orchids contributed by Messrs. Low to the Gala of last year. The firm had also sent a donation of £5.

A vote of thanks to Sir Christopher Milward for presiding concluded the proceedings.

ULSTER HORTICULTURAL.

JANUARY 12.—The annual meeting of the above was held on this date in the Imperial and Windsor Hotel, Belfast, Sir JAMES HASLETT in the chair.

The financial statement showed the Society to be on a firm basis, thanks to the genuine interest taken by the city merchants on the Committee. The total income taken for the last show amounted to £662 12*s.* 8*d.*, and the expenditure £588 17*s.* 7*d.* The Committee also voted 200 shillings to the Lord Mayor's Queen's-statue Fund, which leaves, with balance brought forward, £105 16*s.* 6*d.*

Votes of Thanks were passed to Messrs. Paul and Allen, the Hon. Secretary and Treasurer; and November 13 and 14 fixed for next Show.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 12.—The last meeting took place at the Coal Exchange, Manchester, on the above date, and there were present Shorland Ball, Esq., in the chair, and Messrs. Law-Schofield, Warburton, Greenwood, Weathers, Holmes, Robson, Johnson, J. Leemann, and Mills (Hon. Sec.).

THOMAS STATTER, Esq., Whitefield, showed Cypripedium insigne Sanderianum, receiving a First-class Certificate; Cyp. Luciani superbum and Cyp. vexillarium superbum (Award of Merit). G. SHORLAND BALL, Esq., Wilmslow, showed Lycaste Ballæ (Skinneri × Measuresiana), Cyp. nitens magnificum (F.C.C.); Cyp. Dauthieri albino (Award of Merit); Cyp. Germinyanum (Award of Merit); and Oncidium cheirophorum (Cultural Certificate). SAMUEL GRATRIX, Esq., Whalley Range, showed Cattleya Trianæi "Mrs. S. Gratrix" (Award of Merit); Cyp. nitens superbum (Award of Merit); Cyp. Chapmani, (Award of Merit); Cyp. Ceres, Cyp. Mrs. Margaret Hye (Award of Merit); Cyp. Seedling (Leeanum superbum × Boxalli atratum), Cyp. Calypso, Cyp. Seedling (œnanthum superbum × Harrisianum), Cyp. Seedling (insigne × unknown), Cyp. Seedling (œnanthum superbum × Sallieri), Cyp. Bellona superba, and Cyp. Alcides.

G. W. LAW-SCHOFIELD, Rawtenstall, showed Cyp. Measuresiæ (F.C.C.). JOHN LEEMAN, Esq., Heaton Mersey, showed Cattleya Trianæi, Lælia Gouldiana, F.C.C.; Cyp. Seedling, Cyp. Sallieri Hyeanum, Cyp. Smithi, Cyp. insigne, West Bank House var.; Cyp. Lathamianum giganteum, Cyp. J. B. Haywood (Award of Merit), Odontoglossum crispum, and miscellaneous group of Orchids (Silver Medal). HENRY GREENWOOD, Esq., Haslingden, showed Cyp. Gillianum (Award of Merit), and Cyp. Mons. de Curte (Award of Merit), and Vote of Thanks for Group. O. O. WRIGLEY, Esq., Bury, showed Cyp. insigne, Uplands var.; C. i. subfuscum, C. i. Dormanianum (Award of Merit); C. i. Luciani (Award of Merit); C. callosu magnificum (F.C.C.), Cyp. M. de Curte (Award of Merit), Cyp. Mrs. Maynard, Cyp. nitens magnificum (F.C.C.), Cyp. Jupiter (Award of Merit), Cyp. Leeanum aureum (Award of Merit); also, Silver Medal for collection of Cypripediums. D. B. RAPPART, Esq., of Liscard, showed Cyp. Harrisianum albens (Award of Merit).

H. H. BOLTON, Esq., of Newchurch, showed Dendrobium Andromeda (Award of Merit). F. SANDER & Co., St. Albans, showed Cyp. Euryale magnificum, Cyp. Chamberlainianum × Cyp. Leeanum giganteum (Award of Merit); and Cyp. Lathamianum inversum. HEATH & SON, Cheltenham, showed Cyp. Elliottianum (Award of Merit) and Cultural Certificate.

BRISTOL AND DISTRICT MUTUAL IMPROVEMENT.

JANUARY 13.—The present session of the society was opened on the above date with a very successful meeting, to hear a lecture by Mr. F. W. E. SHRIVELL, F.L.S., of Tonbridge, Kent, on "Chemical Manures."

The lecturer, who was cordially received, said, that as a nation we were far ahead of any other in the use of chemical manure, and stated that at the farm at Tonbridge experiments were being conducted with a view to ascertaining the results of growing crops with chemical manures alone, and in conjunction with stable manure. By means of a black-board and a lucid manner of dealing with the subject, he showed his audience the constituents of stable manure, and how they could be applied in chemical form. He also detailed the experiments that had been made under different conditions at Tonbridge, and gave results, which showed, that in some cases crops could be more successfully grown with chemical than with other manure; and always proving that chemicals could be profitably and successfully added to other manures. Asparagus, Onions, Strawberries, Broccoli, and Cabbage were all mentioned as having been grown under the varying conditions and always to greater advantage with the aid of chemicals.

Concluding his lecture, Mr. Shrivell said that the proper method of gardening was to throw aside all old-fashioned prejudices, and as science was the handmaid of practice, there was no reason why, as time went on, they should not grow as good crops and at a cheaper cost by the use of chemical manures.

A hearty vote of thanks was accorded the lecturer on the motion of the Chairman, Mr. W. A. Garaway.

A prize of 10*s.*, offered by Mr. White, for two Nepenthes, was secured by Mr. W. H. BANNISTER.

EDINBURGH BOTANICAL.

JANUARY 12.—The monthly meeting of this society was held at 5, St. Andrew Square, Edinburgh, at 8 o'clock, P.M., on the above date. The President, Dr. W. WATSON, occupying the chair. Two new candidates were elected—A. W. Borthwick, B.Sc., and Alexander Morton, B.Sc.

The exhibitions included a specimen of Tremellodon gelatinosum, the "Dumfriesshire fungus." This is a gelatinous-looking fungus, the specimen exhibited being about one inch across, and was found by the president at the foot of trees in a wood at Moffat. Though frequent on the continent, in Britain this fungus is said never to have been discovered out of Dumfriesshire. When fresh it is covered with glaucous spines, and possesses a bluish tint. Dr. Cooke states this is an edible fungus. A fine specimen of Goes tigrina, a longicorn beetle, was brought before the notice of the society by Dr. R. Stewart MacDougal, M.A., who had secured the specimen from a section of wood perforated by this insect. Some of these were stated to make tunnels large enough to lay the fingers in, and the specimen of wood shown illustrated well the great damage capable of being done by this North-American species.

Of the communications and papers, the first was given by Symington Grieve, Esq., being "Some Notes on Andromeda polifolia, Linn.," with special reference to a new station found by the reader in Liddesdale, at an elevation of 1000 feet.

A. W. Borthwick, Esq., B.Sc., gave two papers, one on "Quadrifoliar Spurs in Pinus Laricio var. virgata," and also "Notes on the Interfoliar Buds of Pinus Laricio, Poir." The reader illustrated his papers by branches and buds. "Some Micro-methods," by Alex. Lundie, Esq., were communicated by R. A. Robertson, Esq., M.A., B.Sc., who also read some notes on experiments on "Contact Negatives for the Comparative Study of Woods;" slides and photographs of these were laid before the society. The claim was stated by the reader to be principally for their adaptability in class work. *R. L. H.*

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

JANUARY 14.—The members and friends of the above Society assembled in strong force on the above date, for the purpose of celebrating the Tenth annual dinner.

Among the visitors were Messrs. Hiehle, Tivey, Arnold Moss, Thos. Bevan, Harman Payne, Tucker, Gaskill, &c. The chair was taken by Mr. Drost, of the Kew Nurseries, to whom the Society was indebted for the loan of a nice collection of Palms, foliage plants, &c., to decorate the room with.

Mr. George Schneider, in a few well-chosen words, briefly traced the progress of the Society since its formation, and in introducing the chairman, mentioned that he was an employer of many of the young members of the Society who came to this country to learn the language and complete their horticultural education.

Mr. Drost replied. He thought they could look back with great satisfaction in the past, for the Society, having began in a humble way, was now one of great importance and usefulness. The membership was now about 500. The library had largely increased, many of the books having been bound uring the past year; and the balance in the bank showed a substantial increase, all of which were matters for congratulation, and largely due to devoted and active efforts of their friend, Mr. Schneider. He hoped the Society would continue to flourish, and would ask them to drink to their President's health, which was responded to with the utmost cordiality.

Mr. Schneider returned thanks. He referred to the good understanding between English and Continental gardeners, and to the help the Society received from honorary members, who made room in their nurseries for those of the young men who came to this country. More than eighty new members joined this year, and the Society had now the advantage of a nice place for meetings. Other improvements had been made, and expenses incurred, but still they could boast of a larger balance in hand than ever. He was pleased also to see so many English visitors present, and called upon the company to drink to their health. At this juncture, M. Gouillond, in the name of the *membres titulaires*, made a presentation of a *cafétiere* to Mr. Schneider as a mark of their esteem and appreciation. After Mr. Schneider's reply, Mr. Arnold Moss responded for the visitors. Mr. Gachelin proposed the English horticultural Press, to which Mr. Harman Payne responded.

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT.

January 14.—The annual meeting of the Isle of Wight Horticultural Improvement Association was held on Saturday last at the Newport Guildhall. Dr. J. Groves, B.A., J.P., presided over a large attendance of members from all parts of the Island.

After the confirmation of the minutes of the last annual meeting, the report for 1898 was adopted, on the proposition of the Chairman, seconded by Mr. R. F. Eldridge, J.P., C.A., Vice-Chairman of the County Council, and Chairman of the Technical Education Committee. Then followed the election of officers for the ensuing year, after which a social entertainment took place at Warburton's Hotel, where songs, recitations, duets, &c., were given by the members. Mr. A. Guy staged a collection of Cyclamen, for which he received a unanimous vote of thanks.

SHIRLEY & DISTRICTS GARDENERS' MUTUAL IMPROVEMENT.

January 16.—The monthly meeting of the above society was held at the Parish Room, Shirley, Southampton, on the above date, when the President, W. F. G. Spranger, Esq., presided, there being an average attendance of the members. The lecture, "The Effects of Electricity on Plants," was given by R. W. Stewart, Esq., D.Sc., London, principal of the Hartley College, Southampton, and was under the auspices of the Southampton County Council Technical Education Committee. The lecture was very efficiently illustrated by a number of diagrams, lantern slides, and electric experiments.

The lecturer first gave a brief description of electric science, explaining with actual experiments the meaning of high and low pressure, positive and negative electricity, and many other terms in constant use. He also showed how a current may be made to pass through ordinary soils, and showed that a box of seeds which had been subjected to a current for two hours daily, showed a higher and better percentage of germination than boxes of similar seeds not so treated. Reference was also made to experiments carried out in France and Russia, and also in this country at Clifton, where, on experimental plots of land, high poles carrying conductors had been erected, and connected underground with wires in all directions. Comparison of the crops grown on these experimental plots, with similar crops grown on adjacent plots, not electrically treated, showed an increase of from forty to sixty per cent. in favour of the former.

The lecturer concluded by hoping some of his audience would try some of the experiments he had shown them, and communicate the results to him later on. A hearty vote of thanks was accorded to the lecturer at the close of the lecture.

Obituary.

Mr. A. C. Wheeler.—We regret to announce the death of Mr. A. C. Wheeler, J.P., of Gloucester, which occurred after a long illness on Friday the 13th inst. The deceased was the sole proprietor of the old-established nursery and seed business carried on under the style of Messrs. J. C. Wheeler & Son, Gloucester. The firm has been in existence upwards of a century, Mr. Wheeler being the third head the business has known in this long period. He had long enjoyed in the West of England a wide reputation in horticultural science, and throughout his career he was intimately connected with agricultural interests of the county and district, and actively promoted every movement for their advancement. As far back as 1862 he was presented with a valuable clock, salver, and claret-jug, in recognition of his services as local secretary to the Gloucester meeting of the Gloucestershire Agricultural Society, the President of the Association, Mr. E. Holland, M.P., supplementing this with a gold snuff-box; and four years later he was presented with a handsome piece of plate, in the form of a silver epergne, by the Agricultural and Horticultural Society, in recognition of his exertions during the prevalence of the cattle-plague of that time. Mr. Wheeler was for a long period hon. secretary of the Gloucester Chamber of Agriculture, and retained the appointment up to the time of his death. He was formerly for some years hon. secretary of the Gloucestershire Root, Fruit, and Grain Society. The deceased gentleman, who was seventy-three years of age, was an Alderman of the City Council, and had held the distinguished offices of High Sheriff and Mayor of Gloucester.

The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

	Temperature.					Rainfall.			Bright Sun.	
		Accumulated.								
Districts.	Above (+) or below (−) the Mean for the week ending January 14.	Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.	More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	2 +	4	25	− 6	− 27	0 aver	11	2·1	12	12
1	2 +	3	34	− 10	− 12	1 +	12	1·4	15	13
2	4 +	10	21	+ 1	− 28	1 +	9	0·9	14	11
3	6 +	26	11	+ 23	− 49	4 +	10	1·2	35	28
4	6 +	26	13	+ 19	− 43	6 +	11	1·6	20	18
5	8 +	35	2	+ 38	− 60	4 +	10	1·5	31	27
6	3 +	10	18	− 2	− 17	6 +	14	3·1	12	9
7	5 +	24	7	+ 20	− 36	4 +	12	1·9	13	13
8	6 +	35	1	+ 36	− 43	15 +	12	3·6	9	11
9	2 +	11	22	− 2	0 aver	1 −	13	1·8	25	15
10	2 +	29	13	+ 24	− 16	10 +	14	3·1	28	18
*	6 +	55	0	+ 56	− 24	8 +	12	3·0	13	15

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending January 14, is furnished from the Meteorological Office:—

"The *weather* during this period was very changeable, and rainy over the whole kingdom, but several fine bright intervals were experienced over the southern and eastern parts of England, as well as over Ireland.

"The *temperature* was again above the mean, the excess ranging from 2° in 'Scotland, N. and E.,' and over 'Ireland,' to as much as 6° in 'England, E.,' the 'Midland Counties,' 'England, S.W.,' and the 'Channel Islands,' and 8° in 'England, S.' The highest of the maxima were registered either on the 8th or 12th, and ranged from 57° in the 'Channel Islands,' and 56° in 'England, S. and S.W.,' and 'Ireland, S.,' to 50° in 'England, N.E.' The lowest of the minima which were recorded on the 8th in Scotland, and during the middle of the week elsewhere, varied from 25° in 'Scotland, E.' and 'Ireland, N.' to 33° in 'England, N.W.,' and to 41° in the 'Channel Islands.'

"The *rainfall* was more than the mean very generally, but only just equal to it in 'Scotland, N.,' and slightly less in 'Ireland, N.' Over the southern half of the kingdom the fall was about twice as much as the normal.

"The *bright sunshine* exceeded the mean over Ireland, in 'England, S. and E.,' and the 'Midland Counties,' and just equalled it in 'Scotland, N. and E.' In all other districts however, there was a deficiency. The percentage of the possible duration ranged from 35 in 'England, E.' and 31 in 'England, S.' to between 28 and 25 in Ireland, and to 9 in 'England, S.W.'

MARKETS.

COVENT GARDEN, JANUARY 19.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Fruit.—Average Wholesale Prices.

	s. d. s. d.
Apples, per bushel	4 6- 6 0
— Beefings, per bushel ...	5 0- 5 6
— Greenings, per bushel ...	4 0- 5 6
— Wellingtons, bushel ...	6 0-10 0
— Sourings, per bushel ...	3 6- 5 6
— Large cookers, per bushel ...	3 0- 5 0
— French, Reinette Gris, cases... ...	7 0 —
— — Crabs, bush.	5 6 —
— — large cookers, cases... ...	7 0- 8 0
— Nova Scotia Baldwins, Greenings, Gold Russets, Ribstons, and other sorts, per barrel ...	16 0-25 0
— Californian New Towns, Fancy Reds, &c., per case	7 0- 9 0
Bananas, per bunch	7 0-14 0
Chestnuts, various, per bag ...	4 0-14 0
Cobnuts, per 100 lb.	35 0-45 0
Cranberries, American, box ...	12 0 —
Custard-Apples, doz.	6 0-12 0
Grapes, English, Alicante, lb. ...	1 0- 1 6
— Gros Colmar ...	1 0- 1 6

	s. d. s. d.
Grapes, Muscats, per lb. ...	2 0- 4 0
— Almeria, doz. lb.	6 0- 8 0
— Belgian, lb. ...	0 8-0 10
Lemons, per case...	7 6-14 0
— Messina, 360 ...	4 6-12 0
Lychees, Chinese, packet, 1 lb. ...	1 6 —
Oranges, Jaffa, cases	7 0- 9 0
— Denia, case, 420	9 0 —
— Mandarin, pkt. of 10 boxes ...	5 0 —
— Valencia ...	7 6-15 0
— Teneriffe, case	4 0- 4 6
— Seville Bitters, per case ...	6 6 —
— Tangierine, box of 25... ...	0 6-0 10
— — box of 108	4 0 —
Pears, Californian, Easter Beurré, case, 108 ...	18 0 —
— Glout Morceau, per case ..	18 0 —
— Winter Nelis, per case ...	16 0 —
— Catillac, French, crates ...	14 0- —
Pines, St. Michael's, each	2 0- 4 0
— West India, doz.	7 0- 8 0
Plums from the Cape, case of 24	10 0-12 0
Walnuts, kiln-dried, Naples, cwt. ...	36 0 —
— — peck ...	4 0 —

Vegetables.—Average Wholesale Prices.

	s. d. s. d.
Artichokes, Globe, per doz. ...	2 0- 2 6
— Jerusalem, per sieve	1 3- 1 6
Asparagus, Paris, green	3 0- 3 6
— Giant, bund. ...	14 0-18 0
— Spanish, bund.	1 9- 2 0
— Sprue	0 6-0 10
— English, per 100	6 6- 7 6
Beans, Dwfs., Channel Islands, lb.	2 0 —
— Madeira, bkt.	2 0- 3 0
Beetroots, per dozen	0 6- 0 9
— bushel	2 0 —
Brussels Sprouts, per sieve ...	1 0- 1 6
— per bushel ...	2 0- 3 0
Brussels tops, bush.	1 6 —
Cabbage, Coleworts, per bushel ...	2 0 —
— Savoys, p. doz.	1 3- 2 0
— — per tally ...	6 0- 9 0
Cardoons, each ...	1 0- 1 3
Cauliflowers, p. doz.	1 0- 1 9
— per tally ...	6 0- 8 0
— Italian, baskets of 18	3 0- 3 6
Celeriac, per dozen	1 9- 2 0
Carrots, washed, in bags	3 0 —
— unwashed ...	2 0 —
— Surrey, bunchs.	2 0- 2 6
— French flats ...	1 3 —
Celery, Red, dozen bundles ...	8 0-15 0
— unwashed ...	6 0 —
Chicory, per lb. ...	0 3 —
Chow Chow, or Chayoté, case about 30 lb.	4 6- 5 0
Cress, doz. punnets	1 6 —
Cucumbers, per doz.	5 0-10 0
Endive, French, per dozen	2 0 —
— Batavian, doz.	1 6- 2 0
Garlic, per lb. ...	0 3 —
Horseradish, New English, bundle	2 0- 2 6
— — loose per doz., fine ...	2 0 —

	s. d. s. d.
Horseradish, foreign, p. bundle	1 3 —
Leeks, doz. bunch.	2 6 —
Lettuce, Cabbage, per doz. ...	1 0- 1 6
Mint, new, forced, per doz. bunch.	4 0- 6 0
Mushrooms, house, per lb.	0 6- 0 9
Onions, Albanians, bags	6 0- 6 6
— Dutch, per bag	4 6- 5 0
— English, cwt...	6 0- 6 6
— Valencia, cases	8 6- 9 0
— picklers, sieve	2 6- 3 0
Parsley, per dozen	1 0- 1 6
— sieve	1 0 —
Parsnips, per dozen	0 6- 0 9
— cwt. bags ...	3 0 —
Potatos, Hebrons, Snowdrops, Up-to-Date, &c., per ton	60 0-80 0
— New, Algerian Kidneys, per lb.	0 2½-0 3
— — Frame, lb.	0 5- 0 6
— — Teneriffe, per cwt. ...	12 0-16 0
Radishes, Round, breakfast, per dozen bunches	0 6- 0 8
Rhubarb, York, per doz. bundles ...	1 3- 2 0
Salad, small, punnets, per dozen	1 3 —
Scotch Kale, bushel	2 6 —
Seakale, per dozen punnets ...	10 0-15 0
Shallots, per cwt....	8 0- 9 0
Spinach, French, crates	5 0- 6 6
Tomatos, Canary, boxes	2 0- 3 6
Turnips, Eng., per doz. bunches ...	2 0 —
— in bags... ...	2 0 —
Turnip-Tops, bag ...	2 0- 2 6
Watercress, p. doz. bunches ...	0 6- 0 9
Yams from Canaries, case	4 0- 7 0

Potatos.

Beauties, Saxons, Giants, Up-to-Date, &c., according to sample, 60s. to 80s. per ton; Dunbar Main Crops, 90s. *John Bath, 32 and 34, Wellington Street, Covent Garden.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arbor Vitæ, p. doz.	12 0-36 0	Ferns, small, per 100	4 0- 6 0
Aspidistras, p. doz.	18 0-36 0	Ficus elastica, each	1 0- 5 0
— specimen, each	5 0-10 0	Foliage plants, var., each	1 0- 5 0
Dracænas, various, per doz.	12 0-30 0	Lycopodiums, doz.	3 0- 4 0
— viridis, p. doz.	9 0-18 0	Marguerite Daisy, per dozen ...	6 0- 8 0
Euonymus, various, per dozen ...	6 0-18 0	Myrtles, per doz. ...	6 0- 9 0
Evergreens, in var., per dozen ...	6 0-24 0	Palms, various, ea.	1 0-15 0
Ferns, in variety, per dozen ...	4 0-12 0	— specimens, ea.	21 0-63 0
		Scarlets, per doz.	4 0- 6 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms	6 0- 8 0	Narcissus, White, p. dozen bunches ...	2 0- 4 0
Asparagus "Fern," bunch	2 0- 3 0	Orchids, per dozen blooms	6 0-12 0
Azalea, white, 12 blms.	1 0- 1 3	Pelargoniums, doz. bunches	6 0- 9 0
Bouvardias, per bun.	0 6- 0 8	— scarlet, per doz. bunches	8 0-10 0
Carnations, per doz. blooms	2 0- 3 0	Pink Roses, per dozen	4 0- 6 0
Eucharis, per dozen	2 6- 4 0	Roses (indoor), doz.	1 6- 2 0
Gardenias, per doz.	2 0- 3 0	— Tea, white, doz.	3 0- 4 0
Hyacinths, Roman, per doz. bunches	6 0- 8 0	— Perle, per doz.	1 0- 2 0
Lilium longiflorum, per dozen ...	6 0- 9 0	— Safrano, p. doz.	1 6- 2 0
Lily of the Valley, dozen sprays ...	1 6- 2 6	Smilax, per bunch	2 0- 3 0
Marguerites, 12 bun.	6 0- 8 0	Tuberoses, 12 blms.	1 0- 1 6
Maidenhair Fern, per doz. bunches	6 0- 9 0	Violets, per dozen bunches	1 0- 2 0
		— Parma, bunch	4 6- 6 0

REMARKS.—Amongst fruits, the prices are much the same as in last report. French Spinach advanced in price. Home supply practically *nil*. Note Cape Plums as above. Further arrivals of Cape fruits are expected next week, when Peaches, &c., may be expected to show. Home-grown Tomatos are now finished. Canaries come in good condition and quality.

SEEDS.

LONDON: *January* 18.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., describe to-day's seed market as thinly attended, with but few transactions passing. For grass and Clover seeds the sale is, as yet, confined to narrow lines, whilst as regards values, no important alteration can be noted. There is still a great scarcity of Rye. Tares show no change. The demand for Haricot Beans, Blue Peas, and Spanish Lentils is, in consequence of the mild weather, meagre. Bird seeds likewise attract, for the moment, but little attention. For Linseed the trade is quiet. Mustard and Rape seed keep steady. The Board of Trade returns give the imports of Clover and grass seeds into the United Kingdom for the month of December, 1898, as 42,872 cwt., value £82,352, as against 43,084 cwt., value £79,497 for the corresponding period of 1897.

FRUIT AND VEGETABLES.

GLASGOW: *January* 18.—The following are the averages of the prices recorded since our last report:—Apples, per barrel, Canadian Baldwins, 25*s*. to 27*s*.; Phœnix, 24*s*. to 26*s*.; Mignons, 22*s*. to 24*s*.; American — Californian Newtown Pippins, 7*s*. 6*d*. to 9*s*. 6*d*. per case; Lemons, Messina, 7*s*. to 10*s*. do.; Palermo, 8*s*. to 10*s*. do.; Grapes, home, 1*s*. 3*d*. to 1*s*. 9*d*. per lb.; bitter Oranges, Blond Bitters, 7*s*. per case; Oranges, Jaffa, 7*s*., 7*s*. 6*d*., to 8*s*. 6*d*. do.; do., Valencia, ordinary, 420's, 5*s*. 9*d*. to 7*s*. do.; do., large, 9*s*. to 10*s*. do.; do., extra large, 11*s*. to 13*s*. do.; do. 714's, 6*s*. 6*d*. to 8*s*. do.; Mandarins Oranges, 6*d*. to 9*d*. per box; Marcias, 5*s*. to 7*s*. per case; Pears, Californian Winter Nelis, 9*s*. to 13*s*. do.; Pears, do., Easter Beurré, 12*s*. to 15*s*. do.; do., Glou Morceau, 12*s*. to 15*s*. do.; Onions; Valencias, 4's, 7*s*. 6*d*. and 8*s*. per case; do., 5's, 9*s*. 6*d*. do.; Cabbage, late Savoys, 9*d*. to 1*s*. 6*d*. per dozen; Parsnips, 3*s*. to 4*s*. per cwt.; Herbs, 1*d*. to 2*d*. per bunch; Parsley, 1*s*. to 1*s*. 6*d*. per stone; Potatos, 5*d*. to 6*d*. do.; Carrots, 2*s*. 6*d*. to 4*s*. per cwt.; Cucumbers, 9*d*. to 1*s*. each; Lettuce, 6*d*. to 9*d*. per dozen; Radishes, 1*s*. 6*d*. per dozen bunches; Horseradish, 2*s*. per bundle; Mushrooms, 9*d*. to 1*s*. 3*d*. per lb.; Beetroots, 6*d*. to 9*d*. per dozen; Brussels Sprouts, 1*s*. 3*d*. to 1*s*. 6*d*. per stone; Turnips, Swedes, 1*s*. to 1*s*. 2*d*. per bag; do. white, 2*s*. per dozen large bunches; Sea Kale, 1*s*. 9*d*. to 2*s*. per bunch.

LIVERPOOL: *January* 18. — *Wholesale Vegetable Market*:—Potatos, per cwt., Giants, 2*s*. to 2*s*. 2*d*.; Main Crop, 2*s*. 8*d*. to 3*s*. 2*d*.; Bruce, 2*s*. 4*d*. to 2*s*. 8*d*.; Turnips, 8*d*. to 1*s*. per dozen bunches; Swedes, 1*s*. 4*d*. to 1*s*. 6*d*. per cwt.; Carrots, 2*s*. 9*d*. to 3*s*. 6*d*. do.; Parsley, 6*d*. to 8*d*. per dozen bunches; Onions, English, 5*s*. to 6*s*. per cwt.; do., foreign, 4*s*. to 4*s*. 9*d*. do.; Cauliflowers, 1*s*. 9*d*. to 3*s*. per dozen; Cabbages, 8*d*. to 1*s*. do.; Celery, 8*d*. to 1*s*. 6*d*. do. *St. John's*:—Potatos, 10*d*. to 1*s*. per peck; Grapes, English, 2*s*. to 3*s*. per lb.; do., foreign, 6*d*. to 1*s*. do.; Pines, English, 4*s*. to 7*s*. each; Cobnuts, 8*d*. per pound; Asparagus, 1*s*. per bundle; Cucumbers, 1*s*. 3*d*. each; Mushrooms, 1*s*. 4*d*. per lb., and basket. *Birkenhead*:—Potatos, 8*d*. to 10*d*. per peck; Grapes, English, 1*s*. 6*d*. to 3*s*. 6*d*. per pound; do., foreign, 6*d*. to 10*d*. do.; Pines, English, 6*s*. to 10*s*. each; do., foreign, 4*s*. to 6*s*. do.; Mushrooms, 1*s*. to 1*s*. 6*d*. per lb.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending January 14, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	35 0	27 2	– 7 10
Barley	27 8	28 2	+ 0 6
Oats	17 4	17 1	– 0 3

GARDENING APPOINTMENTS.

MR. WILLIAM OWEN, principal Foreman at Madresfield Court Gardens for the past three years, as Head Gardener to the Hon. G. H. ALLSOPP, M.P., Foston Hall, Derby, in succession to Mr. G. LEWIS, who retires from gardening to take up farming in March next.

Mr. J. W. BUCKINGHAM, for the past two years Foreman at Taplow Court Gardens, Maidenhead, has been appointed by the Trustees of the late Sir ROBERT MEADS to take charge of the Englemere Estate, Ascot, Berks.

Mr. GEO. MURRAY, for the last twelve months Gardener to P. R. WAUD, Esq., 14, Spring Bank, Manningham, Bradford, as Gardener and Bailiff to Mrs. BARLOW, Shimdda-Hir, Llandudno, North Wales.

CATALOGUES RECEIVED.

WM. SAMSON & Co., 8 and 10, Portland Street, Kilmarnock—Seeds, &c.

WM. CUTBUSH & SON, Highgate, London, N.—Garden Seeds, &c.

CHARLES SHARPE & Co., Ltd., Sleaford—Seeds, &c.

TILLEY BROS., 133, London Road, Brighton—Seeds.

BELL & BIEBERSTEDT, Leith, N.B. — Wholesale List of Seeds, &c.

W. DRUMMOND & SONS, LTD., Seeds, &c.

H. CANNELL & SONS, Swanley, Kent—Seeds, &c.

THOS. S. WARE, LTD., Hale Farm, Tottenham—Seeds, and Begonia, Chrysanthemums, &c.

HAAGE & SCHMIDT, Nurserymen, Erfurt, Germany—Seeds and Plants.

W. WELLS & Co., Ltd., Earlswood, Redhill, Surrey—Supplementary List of Chrysanthemums.

THOS. KENNEDY & Co., High Street, Dumfries—Seeds, &c.

HARLAN P. KELSEY, 1106, Tremont Buildings, Boston, Mass. — Hardy American Plants and Carolina Mountain Flowers.

ROBT. SYDENHAM, Tenby Street, Birmingham—Seeds, &c.

THYNE & PATON, 18, Union Street, Dundee—Seeds.

WILLIAM FELL & Co., Royal Seed Establishment, Hexham—Seeds, &c.

HENRY ECKFORD, Wem, Shropshire—Seeds, &c., Novelties in Sweet and Culinary Peas.

AUSTIN & MCASLAN, 89, Mitchell Street, Glasgow—Seeds, &c.

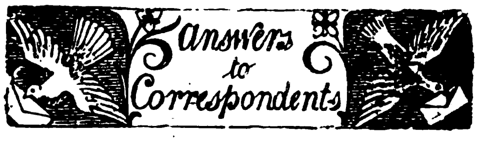
FRIEDR. C. POMRENCKE, Hamburgerstrasse, 42 to 46, Altona, Hamburg—Seeds, &c.

JOHN BOLAM & SONS, Alnwick—Seeds.

FRED. SMITH & Co., Church Street, Woodbridge—Seeds.

THOS. DAVIES & Co., Wavertree, Liverpool—Seeds, &c.

ARTHUR ROBINSON, 1A, Bishopsgate Street Without, London, E.C.—Seeds, &c.



Answers to Correspondents

ASPARAGUS PLUMOSUS: *James*. This plant and others similar grow well in the intermediate house, *i.e.* at a temperature of 50° to 65°, but the sprays are then too compact, and growth generally is very close, and more graceful growths are obtained by cultivation in a temperature of 60° by night, to 75° or 80° by day. In the dull season a medium should be struck between the temperatures of the stove and that of the intermediate house.

BOOKS: *B. G. Stanley*. *Journal of the Board of Agriculture*. This publication is printed and published by Laughton & Co., 1, Essex Street, Strand, W.C.

CYMBIDIUMS: *Veritas*. The Cymbidiums you mention are regarded as winter flowerers, though they often flower at other seasons.

CYPRIPEDIUM: *J. D., Burton-on-Trent*. We do not know a Cypripedium by the name you gave.

DENDROBIUM FLOWERS: *M. N.* A very good form of D. nobile.

FORCING FREESIAS AND NARCISSUS PAPER-WHITE TWO YEARS RUNNING: *Reader*. No good results would follow the practice.

GARDENERS' WAGES: *R. T.* We think that generally the highest wage is paid in the manufacturing districts of mid and northern England. With reference to the number of hours worked, the rule of 6 A.M. to 6 P.M. in the summer half-year, and 7 A.M. to 5 P.M. in the winter half, hold good in most places over the entire country. In some districts Saturday is a "short" day.

MARRAM GRASS: *W. F. M.* See the *Gardeners' Chronicle*, December 16, 1898, p. 750.

NAMES OF FRUIT: *H. T. C.* 10 and 11, resembles Gravenstein; 12, French Crab.—*J. B.* Not known.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*A. F.* 1, a form of Cypripedium × nitens, with more than the usual evidence of C. villosum in it. 2, Oncidium sphacelatum; 3, Vanda Amesiana; 4, Calanthe × Bella, with sepals not quite so white as the original.—*P. H.* Cattleya Trianæi var. delicata.—*T. T.* Cœlogyne Rossiana.—*J. B. R.* Plympton. The flower of Lælia peduncularis sent previously, like these now sent, was imperfect on account of all the parts being pressed together, and the pollinia lost. We did not find a flower of Cypripedium. Flowers should be sent in strong boxes, so as to preserve their form, and particulars, or a rough sketch of growth materially assists identification.—*Scotch*. Dolichos Lablab, of Linnæus, native of India, and frequently cultivated in warm countries. The pods in a green state are used as pickles, and in Egypt the pods are cooked as Kidney beans. It is figured at t. 896 of the *Botanical Magazine*.

POTASH—QUANTITY TO EMPLOY AS A DRESSING: *Reader*. The quantity of this salt (carbonate of potash) to be used on land under fruit trees, if applied in the form of wood-ashes, is 40 bushels to the acre. If the mineral salt is used 2½ cwt. per acre is a sufficient dressing applied in the autumn or spring. If manure from the farmyard or stables be used, and there is a good proportion of straw therein, much potash is supplied to the land by that means.

"RIVIERA FLORA": *Enquirer*. Moggridge's *Flora of Mentone*, and Bicknell's *Flowering Plants of the Riviera* are both most useful, containing numerous coloured plates. *Ardoino Flore des Alpes Maritimes* is even more complete, but is not illustrated. Probably there are local Floras to be had at less cost, for which enquiry should be made of the leading booksellers in the large towns. The general Floras of France and Italy, naturally include the plants of the Riviera.

SERVANTS LICENCES: *Shaw*. A licence has to be taken out yearly for each gardener and under-gardener, but not for garden labourers.

"TWIN" FRUITED APPLE: *J. L., I. W.* Your specimen is by no means an uncommon one. Apples, Tomatos, and other fruits frequently furnish instances of two fruits having become perfectly united together. It is hardly correct to describe such cases as "freaks" of Nature, as the circumstance is due to the fact that at a very early stage of their growth two buds became fused together by the close pressure exerted. Occasionally one growing point becomes divided, and produces a similar condition. We are pleased to know that for a period of upwards of forty years the *Gardeners' Chronicle* has been a source of interest to you. May it long continue to be so.

WATERPROOF PAPER: *W. W.* We must decline to recommend dealers, and you should either scan our advertisement columns, or advertise your needs.

COMMUNICATIONS RECEIVED. — O. Doin, Paris. — C. C. H. — Fischer de, Waldheim.—Lady H.—W. B., Worksop.—W. M.—W. W.—W. Norlin.—W. Totty.—Earl of Annesley.—C. T. L.—Viscountess H.—C. C. H.—H. G. H.—T. J. M.—R. P. B.—J. Batters.—S. Castle.—R. M.—T. M.—R. P. B.—J. Gregory.—H. E. R.—W. K.—T. Ryan.—R. D.—J. F. McL.—A. J. L.—H. H. T.—H. Correvon.—A. F. Sieveking.—E. Rodigas.—R. Kirk, M.D.—J. P. & Sons.—J. M.—J. C.—F. Freeman Page.—H. O. E.—W. W.—S. C.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—Dr. Wilson.—J. Smith.—F. W., Steephill (next week).—E. F. H.—W. M. G.—General Gillespie.—W. Goldring (many thanks—anticipated).

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS *at home, that it has a specially large* FOREIGN AND COLONIAL CIRCULATION, *and that it is preserved for reference in all the principal Libraries.*

THE
Gardeners' Chronicle
SATURDAY, JANUARY 28, 1899.

DUNS CASTLE.

At the gardens at Duns Castle, in Berwickshire, is to be seen a fine old tree of the common Myrtle, which, on account of its great age, and the story in connection with it, may fairly claim to be the most remarkable Myrtle in the country. The tree is planted in the middle of the conservatory, the top of which it long since reached, and although now 120 years of age, its vigour is that of a youngster.

The following history of the tree is related on a tablet:—"This Myrtle was a sprig in the bouquet of the beautiful Miss Lucy Johnstone, of Hutton Hall, worn at a ball given in her honour about the year 1777-78. Mr. Lumsdaine, of Blanerne, presented the plant to Mrs. Hay, but there being no greenhouse here at the time, it was reared at Kimmerghame till the year 1803, when it was transplanted here."

Conflicting opinions anent the authenticity of this version of the plant's genesis are, however, held by some students of the legendary lore of Berwickshire, it being affirmed that in place of the ball being given in honour of Miss Lucy Johnstone, who was one of the beauties of her time, the fair maid was not even honoured with an invitation (she presumably not having at the time "come out"), but that with the aid and connivance of her old nurse she managed to evade the maternal vigilance, and descended to the ballroom, clad in simple white, with a sprig of Myrtle in her bosom as her only adornment. In any case the story is a pretty one, and adds greatly to the interest of the tree. History does not relate how the plant came into the possession of Mr. Lumsdaine.

Kimmerghame House is but a short distance from Blanerne and Duns Castle, and the plant is thus connected with four of the principal seats in Berwickshire; and there are few dwellers in the county who have not heard of the Duns Castle Myrtle, and there are many who, from sprigs of the tree, have reared plants of their own, of whose origin they speak with pride.

After being removed to the newly-built greenhouse or conservatory at Duns Castle, the plant seems to have thriven splendidly, and soon taxed the resources of its somewhat limited quarters, so that the branches had to be twisted and coiled, the then lord of the manor having a strong objection to the plant being cut; and not the least interesting circumstance connected with the plant, from the visitor's point of view, was the curious twisting and turning of the thick limbs, which still continued to flourish.

To enable the tree to expand further, the house was eventually raised, and is now, in the centre, some 30 feet in height. The limits of space were soon again filled, and clipping had to be resorted to, although this was not carried out further than was actually necessary until some two years ago, when it was decided to severely prune the tree, which had now become very unshapely. It was, therefore, cut hard back, nearly to the trunk, many branches and limbs of considerable thickness being removed. After the operation, it was regularly syringed with tepid water to encourage it to break; and it responded in a most satisfactory manner, new growth springing out from every part, until now it is a pyramid of beautiful green, and will for years continue an object of interest.

On the lawn in front of the conservatory in which the plant is situated are three fine trees of Araucaria imbricata, one of which—a female tree—is a noble specimen in every way. It is about 45 ft. in height, and is very symmetrical, its lower branches sweeping the ground around, and covering a circumference of 105 feet. It has for the past few years fruited regularly, and last autumn was carrying between twenty and thirty cones. A fine batch of seedling plants has been raised from seeds collected in previous years. A photograph of the tree was exhibited at the Conifer Conference of the Royal Horticultural Society at Chiswick.

Besides the conservatory, there is at Duns Castle a further range of glass, 300 feet long, which is in capital repair, and which is given up principally to the cultivation of fruit—Peaches, Grapes, Tomatos, Melons, &c., being exceedingly well grown. Of plants under glass, great attention is given to the cultivation of the Begonia, and the entire side of one house is occupied by these beautiful plants.

Outside, the principal feature of the gardens is the hardy fruit, and there was in the autumn a very fine crop of Apples, although Pears were somewhat light, while Plums were not above average.

The Apples are principally pyramids on the Paradise stock, in which Mr. Aikman, the chief of the gardens, has great faith, and the health and vigour of the trees, combined with the fine crops they are carrying, are proof of the soundness of his methods and the wisdom of his theories. Many old orchard trees are also to be seen, but these are being gradually removed and replaced by younger trees of the most approved varieties. Small fruits were last year an enormous crop, Gooseberries especially being here seen in quantity and quality such as is seldom met with.

So far north there is, of course, always the devastation of spring frosts to be dreaded whilst the trees are in bloom, but this evil is mitigated by the adoption of a glass coping which projects some 2 feet along the top of the wall. Attached to the front of this coping is an iron rod, and when the trees are about to burst into bloom, a similar rod is erected about 9 feet from the ground, and on these are stretched on rings curtains of frigi-domo, which are drawn regularly every night, and the trees are thus shut off from all possible harm. The curtains are again drawn back on the following morning, and secured to upright posts, which are erected at intervals for the purpose.

Vegetables of all sorts last season yielded good crops, although the drought had to be contended against, the gardens resting on a gravelly subsoil.

There is no flower-garden proper at Duns Castle—and, indeed, on an estate of so much wild and natural beauty it would be almost an impertinence to introduce it—but here and there throughout the gardens are beds and borders of all sorts of old-fashioned flowers, one border in particular, over 100 yards long, and filled with herbaceous plants, Roses, &c., making a delightful feature.

Leaving the gardens for the Castle, the path lies through the ancient park, in which are many noble trees. It was to this "Duns Park" that Robert the Bruce, in the year 1318, commanded the Earl of Douglas and Dunbar to repair and join Randolph, prior to an assault on Berwick, and it was this same Thomas Randolph, Earl of Moray, who took so prominent a part under Bruce in the War of Independence, and who built the Castle in the year 1320, King Robert having bestowed on him the lands and town of Duns as a reward for his services. The walls of this ancient structure are of enormous thickness, and the place must have been one of considerable strength in those days. Duns Castle was the headquarters of General Leslie when the Covenanters lay encamped at Duns Law in the year 1639, and the bedroom which he occupied is shown to this day.

Alterations and additions have from time to time been made on the building, the latest of which were effected by the late Colonel Hay, who built at the angles of the old structure the tall battlemented turrets which now form such characteristic features of the edifice, added a main doorway on the south side in a style to correspond with the turrets, and converted the original square windows into large lights of late Gothic form.

The Castle contains many portraits and pictures of great historic interest, as well as most valuable relics connected with the Royal House of Stuart. Chief among these latter are a lock of Prince Charles Edward's hair, and a draught-board once the property of the ill-starred Mary Queen of Scots. The squares of this board are of silver and gold alternately. But of greater interest than either of these, perhaps, is a document embodying the agreement known as the Solemn League and Covenant, dear to the heart of every patriotic Scotsman. It was on the neighbouring hill—Duns Law—at the foot of which the Castle stands, that the document was signed, and it is said to be the original one, though there is a doubt about it. "The Covenanter's Stone" still marks the spot where the bargain was sealed, and is a source of unfailing interest, with its recollections of General Leslie and the Covenanting Army of 24,000 men who here lay encamped in 1613, ready to do battle "For Christ's Crown and Covenant."

At the foot of Duns Law, and immediately behind the castle, stretches the lake, locally known as the "Hen Poo," a glimpse of the extreme end of which is obtained in fig. 19. This is a magnificent sheet of natural water, stretching for three-quarters of a mile, and containing an area of about fifty acres. It is of very pleasing and irregular outline, and contains two islands, on one of which are trees of a considerable size. In a natural expanse of water of this description, no attempt is made to artificially beautify, but Nature has been wonderfully lavish, and round its sides are abundance of Bullrushes, Spiræas, Sedges, and a host of other water-loving plants; while in one spot is a magnificent breadth of the white Water-Lily (Nymphæa alba), which, when in bloom, presents a most charming spectacle. With the exception of the side of Duns Law, on which sleek and thriving herds of cattle may be seen grazing, the lake is wooded to the water's edge; and on the opposite side from the Law rises abruptly from out the water a correspondingly high hill known as the Witch's Knowe, where, in days gone by, persons suspected of witchcraft were wont to expiate their supposed crimes by burning. *A. A.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM × HAYNALDO-BELLATULUM (HAYNALDIANUM ♀, BELLATULUM).

A VERY singular, new, and pretty hybrid, possessing the desirable feature of being distinct from any other. The scape bears but one flower, though it is almost certain to bear more when thoroughly matured and strong. The flower-stem is covered with soft purple hairs; the bract, which is two-thirds of the length of the ovary, is green, spotted with purple; the ovary greenish, white with purplish down on the prominent ridges. The upper sepal, which is 2½ inches long, and 2 inches broad, is yellowish-green over the basal two-thirds of its area, the upper and marginal third being pure white; the whole surface, with the exception of a narrow white margin, bearing irregularly dotted purple lines. The petals, which have a peculiar wave or twist in them, suggestive of the influence of C. Haynaldianum, are 1 inch broad and 3 inches long, distinctly decurved, creamy-white, with a striking purple reticulation in spots and lines over their whole surface. The lower sepal is half the size of the upper one, greenish-white, with purple-dotted lines. The lip, which has a peculiar lateral compression, has the side-lobes folded one over the other, both being closely shielded by the large staminode, which is yellow, with a few purplish lines towards the base. The colour of the lip is very pale yellow, the face being delicately tinged and dotted with rose. The leaf resembles that of C. Haynaldianum, but bears an obscure dark green reticulation. It flowered for the first time with Walter C. Clark, Esq., Orleans House, Sefton Park, Liverpool, who kindly furnished the material to enable the writer to describe it. *James O'Brien.*

MADRESFIELD COURT GARDENS.

IT is interesting to find that, under the control of the present Earl Beauchamp and his gardener, Mr. Crump (whose portrait is given herewith), this fine old place, near Great Malvern, has not only continued to worthily occupy its old position amongst British gardens, but it has greatly advanced. Lord Beauchamp is a great lover of flowers, and for that reason has had large masses of many descriptions of hardy things planted in all sorts of places, hence in all directions there crop up big climbing, bulbous, and ordinary perennials, beneath trees, amidst long grass, in semi-woodlands—indeed, wherever it is possible to find space, with some show of adaptability or fitness. There are, too, the usual mixed hardy borders, also gardens solely of Roses and of annuals, beautiful flowering or foliage shrubs and trees in all directions, a considerable range of rockwork, not the least prominent feature on which is constituted by Cyclamens in their season; whilst on grass there is a broad serpentine rivulet of Colchicums in variety, the large C. maximum being very prominent. In all directions hardy bulbs have been planted, and the grounds in the spring may be said to be full of Daffodils of all descriptions, Squills, and other bulbs. A very quaint feature of the large flower-gardens fronting the mansion is its coloration, which consists exclusively of orange, yellow, and lemon shades. These allied hues are furnished by all descriptions of plants that have adaptability for the purpose. Such a flower garden is so widely dissimilar to what is commonly seen in similar positions, that it is difficult to criticise it, yet there is, in spite of the oddity, a softness, and harmony in the whole that renders it far from unpleasing. Of course, it would entail immense labour were it resolved to vary the colours to buff, brown, blue, red, white, &c., from year to year. There seems, however, to be no such intention, and Mr. Crump is still on the look-out for yellow-flowered plants that will suit Earl Beauchamp's tastes, although as it is, he seems to have almost everything yellow, or of allied shades. In a new garden where mixed colours rule, there was a small mass of the most perfect single-flowered bedding Begonia I have ever seen. It is there known as the French Worthiana, and though of the same height, it is much stiffer or erect in habit than is the common Worthiana, and the flowers are of double the size, of a rich orange-scarlet, and borne boldly in great profusion. Every one who uses Begonias for bedding should have this beautiful one. They would not then plant the ungainly, large-flowered ones again.

Conifers are very abundant here, especially in the neighbourhood of the fine rockery, which is one of Pulham's best productions. This is well furnished, and the garishness so characteristic of new rockwork has entirely disappeared. The entire construction now looks quite natural. There are intersecting the grounds two very fine avenues of Conifers, each some quarter of a mile in length. The trees composing these are now in the very prime of life. One is of Abies nobilis glauca, the trees averaging 50 feet in height, and perfectly furnished throughout; the habit is somewhat stiff but the colour of the foliage, here almost blue, gives to the trees a very marked aspect. Each tree has lately received a top-dressing in the shape of a couple of cartloads of marl, which they seem to like greatly, previous dressings having done great good. At one end of this avenue there runs at right angles another of a more elegant Conifer, Cedrus atlantica glauca. Some of these trees have the true blue or glaucous tint of the variety richly displayed, others less so, but the avenue is one of great beauty, and commands warm admiration. At its extremity, towards the kitchen gardens is a yet rather new semi-rock garden, which is fast becoming furnished, and will soon become of exceeding interest. Here plants are fully exposed to sunlight, and many thrive that would hardly do so in the comparative shade of the rockery previously mentioned.

MR. W. CRUMP
(The Gardener at Madresfield Court)
See p. 51.)

Hardy Fruit is at Madresfield a very prominent feature. It is evident that the reputation the gardens enjoyed in the days of Mr. Cox has not suffered in any way in the hands of his successor. Fruit-trees are not only found in remarkable abundance, but are wonderfully well done, and generally carried capital crops. The walls within and without the gardens are well clothed, and all ordinary trees are in perfect condition. Pears are specially good, and such varieties as Pitmaston Duchess, Doyenné du Comice (see fig. 16, p. 51), Beurré Boussoch, Beurré Clairgeau, Beurré Superfin, Beurré Diel, Williams' Bon Chrétien, Josephine de Malines, here regarded as the best late Pear, and keeping well till February, were, with many others, finely cropped, having noble fruits. A long series of cordon Pears, planted on either side of the central garden-walk, have had three shoots or branches run off laterally on either side, and these are trained along wires strained tightly overhead, so that the path becomes literally a Pear-bower some 400 feet long. Between each of these side cordons there is a large pyramid or bush-tree. From this walk very fine crops are obtained. Some old espalier Apple-trees merit notice, notably several Ribston Pippins. These are about 4½ feet in height, are in superb health, and were carrying wonderfully fine fruits. There is an espalier of Lord Derby, 4½ feet high, with four horizontal branches on either side, and the entire tree is 42 feet long (see fig. 18, p. 53). This was carrying a grand crop of superb fruits, and indicates in a marked way the value of espalier training in Apple culture. These are, however, only the few out of many. Cox's Orange Pippin was giving a splendid crop on double oblique cordons. These have been six years planted, each stem is about 9 feet long. There are some 30 feet run of these cordons, planted 2½ feet apart. The fruits were remarkably fine, quite perfect samples. These trees were originally budded on to seedling stocks obtained from pips of the cider fruits. Also similarly worked and fruiting well were Claygate Pearmain, Sturmer Pippin, Tyler's Kernel, and others. Apples, Pears, and Plums, are in great plenty in outer gardens and orchards, and there is in one place a large trial orchard, the trees being all of bush form, and planted rather close. Here varieties are tested for fitness for general estate as well as for home culture.

THE ESTATE NURSERY.

A remarkable feature is the fruit nursery. Lord Beauchamp, with thoughtfulness and regard for his tenants' interests, has had raised under the gardener's care yearly about 2000 trees; that is, at least, the number annually worked, chiefly by budding. The nursery, which is changed from one area to another every two or three years, vegetables alternating, has at the present moment several thousands of trees in it, all first-class stuff. The maiden growths on Apples, Pears, Plums, and Cherries would do credit to any nursery in the kingdom, as would also the appearance of the entire stock. Good trees are sent out to tenants yearly, on application, and under such conditions no farm or garden need be otherwise than well stocked. All the best varieties found suitable for the locality are grown. Mr. Crump raises his own stocks; and all seedlings when lifted after the first year for planting up in lines for budding later, have the long tap-root carefully preserved, not cut off or shortened, but bent horizontally, and in the process of planting always towards the front. The result is, he states, that this tap throws out numerous fibres, and these during the season form such mats of roots, that the trees when lifted from behind literally stand alone. That is very much more than can be said of fruit-trees generally when young.

Cordon Currants and Gooseberries are a very interesting feature in the kitchen-gardens; Gooseberries are trained as treble cordons on a single wire trellis, and as quadruple cordons on a double wire trellis. This latter is of the greater interest, as being the more novel. The bushes are planted 18 inches apart in one row; each bush has four stems. These are trained up in pairs on either side, so that, reaching a height of about 6 feet, they are at the top 20 inches apart, each side slanting outwards. Originally each stem was tied up to sticks. There are but three wires on either side, and the top ones are nearly 7 feet high, to carry the nets which

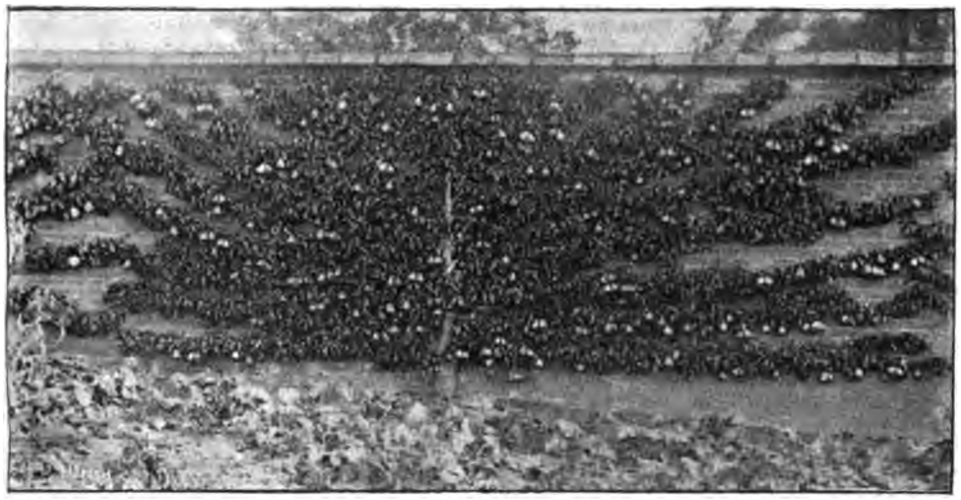


Fig. 16.—A fan-trained tree of Doyenné du Comice Pear, Madresfield Court.

(See p. 50.)

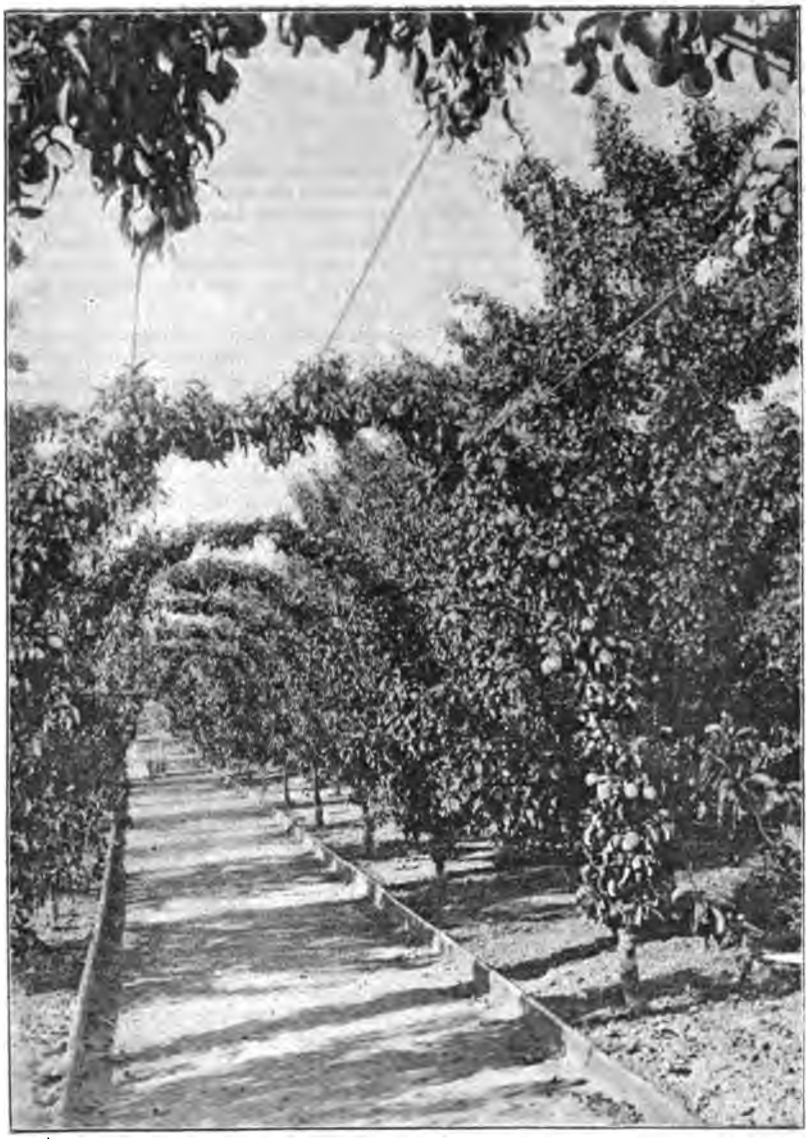


Fig. 17.—An arcade of Pears Madresfield Court

(See p. 50.)

enclose all the quarter. This double cordon of Gooseberries includes dessert varieties only. The adjoining one that is single, is composed of the Lancashire show varieties. Next come wire trellis-trained Raspberries, one row being double-wired as for the Gooseberries. This latter row gives far more fruit from the same space than is given by single-wired trellises. Red and White Currants are trained as cordons by wire also. The former, planted 2½ feet apart, each have three stems, completely furnished with spurs, to the full height of 6 feet. The stems slant somewhat obliquely. The produce in fruit is enormous, and it is wonderfully fine and clean. Birds do not seem to trouble either whites or reds so grown.

There are, of course, large numbers of houses devoted to plant and fruit-culture, but these have for me little of interest compared with what is found outside in hardy fruit-culture at Madresfield Court. *September*, 1898.

William Crump,

the highly esteemed gardener at Madresfield Court, was born at Pontesbury, Salop, in the year 1843. He must have been born a gardener (not bred), for not one of his friends or relations were ever engaged in matters horticultural. From earliest childhood he spent nearly all his time in his parents' small garden amongst the flowers, planting one day, and taking up the next "to see if they grew." One of his earliest experiences was the raising of a healthy sapling Oak from an Acorn, but owing to being planted too near an important window, it proved his first disappointment. After overcoming the objections of his friends, young Crump was duly apprenticed, and went through all the necessary probationship, until the year 1865, when he took charge of the glass department at Powis Castle, Welshpool, under the late Mr. G. Brown, a good all-round Scotch gardener of the old school. Carpet-bedding then became fashionable, and in his thirst for practical knowledge Crump took an unusual step, viz., an Irishman's rise, involving a reduction of wages, but which proved a very wise step. He took the general foreman's place, under the late Mr. Wildsmith, at Heckfield Place, Hants—a place from which have proceeded so many gardeners now holding leading positions. After staying there three years, he became head gardener to F. Harris, Esq., The Grange, Lamberhurst, Kent, a new place, which did not reach the anticipations formed of it. After four years' service there, he went to Blenheim Palace, Woodstock—a place that required much tact to sustain. Much exhibiting was done at the Royal Horticultural Society, South Kensington (then in its greatest prosperity), Crystal Palace, Royal Botanic, Manchester, Oxford, and other shows; Silver Cups and Medals being awarded, including the blue riband at the International Potato Show, Crystal Palace, and, what was most appreciated of all, Messrs. Webber's packing prize, twice in succession. Blenheim Orange Melon, which still holds its own, was raised, exhibited, and received First-class Certificate, R.H.S., during the seven years of his tenure of office as head gardener. In the year 1883 he removed to Madresfield Court gardens, in succession to the late Mr. W. Cox. The place is noted for its excellent soil for fruit growing, which always had a special attraction for Mr. Crump. Large numbers of trees are produced annually for tenants, and distributed gratuitously. There is also an interesting experimental plot, where some 250 varieties of Apples, 80 of Pears, and 50 of Plums are on trial. One of the Victorian Medals of Honour was awarded to Mr. Crump in 1897. Mr. Crump has done excellent service in working up an efficient auxiliary of the Gardeners' Royal Benevolent Institution at Worcester, and has been the means of adding many annual subscribers, and £300 in cash in three years. Oh, that gardeners in other counties would do likewise!—it only requires the will.

GLOXINIAS.

Having been unusually successful in the cultivation of these beautiful plants, it may prove of use to some of our readers if I describe my methods of cultivation. It is at this season that the foundation of a good summer display is laid. Some years ago the Gloxinia was considered a somewhat troublesome plant to grow, chiefly, I believe, on account of the tedious process of propagation from leaves, &c. ; whereas now, seed is chiefly relied upon, and Gloxinias can be made to produce their flowers within six months of sowing the seed. If the seed be of the best strain, the plants will possess fine foliage and lovely blossoms. The first sowing should be made in the present month in pots filled to within half-an-inch of the rim with a compost consisting of two parts loam, one part each of leaf-mould and silver-sand, which should be made fairly firm by hand-pressure. The seed, being very small, requires care in the sowing, so that it may be evenly distributed. It must be very slightly covered with fine soil or sand. The pots should then be well watered, and, if possible, they should be plunged in bottom-heat of 65° to 70°, and each should be covered with a sheet of glass. The water should be applied with the finest rose, and in a slow, gentle manner, so as not to float the seeds above the soil. In a week or ten days the seedlings will begin to appear, when the glass should be tilted slightly, the amount of air being gradually increased, so as to permit the seedlings to gain strength. It is advisable to prick them off into a pan as soon as it is possible to handle them, as to allow them to get drawn is to spoil them. The soil in the pricking-off pans should contain rather more loam than that in the seed-pans. The plants should at all times be carefully shaded from the sun, and a genial, humid atmosphere provided, the temperature being kept at about 70°. When the plants have made three or four leaves, they should be potted-off singly into small 60's, and in doing this the lower leaves should rest on the mould. The compost for this potting and the last one should consist of sound turfy loam two parts, decayed manure one part, and sand one part. The drainage of the pots must be thorough, Gloxinias taking a large quantity of water when growing freely. A sprinkling of the leaves on bright days is beneficial to the plants up till the time the flower-buds show colour. When the first pots get fairly filled with roots, the plant should be shifted into 48's, or if extra fine specimens are desired, then into 32's. When well established in this size of pot, liquid manure is of use in giving greater substance to the leaves and flowers; and it may be applied weekly, once or twice. A small quantity of Clay's Fertiliser sprinkled on the soil is a good form of manure. Care should, however, be taken not to let any of the manure touch the foliage, or spots may appear thereon. When the flower-buds begin to exhibit colour, it is time to remove the plants to a house with a cooler, drier atmosphere, damp injuring the flowers. For a succession, seeds may be sown in February and March. After flowering, the foliage should be induced to wither and drop off by gradually withholding water until they are quite dried off, when they may be placed, with the pots lying on their sides, under the stage in a cool greenhouse till they are again started into growth the next year. To do this the tubers should be shaken free from all the soil, and placed in boxes embedded in cocoa-nut fibre refuse, and exposed to a moist heat in quantity according to requirements. When growth is well advanced, the tubers may be potted into 48's and 32's as the size of the tuber may require, and treated as they were the previous year. *C. Buckland, F.R.H.S., Datchet.*

HERBACEOUS AND TREE PÆONIES.

ONE of the best known Pæonies is P. officinalis. In the dormant state this variety shows the eyes above its thick and fleshy roots; the foliage dying down to the ground every season at the approach of winter. It is found in greatest profusion in the Orient, Japan, and China, and while also found in various districts of Europe and North America, the great range of colour and form is only found in the Far East. There are found the single sorts resembling the Lotus-flower, a set of silken petals surrounding a corolla of rich yellow stamens. The colours of the flowers embrace pure white, delicate rose, rich pink, lilac, soft and rich ; deep crimson, maroon, variegated, pale blush. Then we find the semi-double kinds, with petals whorled, fringed, slashed or smooth, rivalling in richness of colour and variegation the single sorts. The full double kind is often found with petals oddly cut and high centres, recalling the richness of the double Poppies. A beautiful novelty in this class is a velvety blood-red with odd white splashes, really a royal blossom.

Propagation is effected by division of the roots, which, however, should not be done too often, as it weakens growth.

Another well-known Pæony is P. Moutan, or the tree Pæony. This is a shrubby plant, grafted on the roots of P. officinalis. The grafting is best effected in the month of August. The flowers of this class, with proper treatment, attain immense dimensions, flowers of 10 to 12 inches and over being common. The range of colouring is as rich, if not more so, than in the herbaceous sorts. Over fifty distinct and beautiful kinds are now cultivated in Japan for export. The colours are pure white, white shaded lilac or rose, scarlet and rose shading, brilliant carmine, carmine with white edges, pink with lilac edges, maroon, velvety lilac, deep purple, rich rose ; the flowers being single, semi-double, and double, with crimped, smooth, and serrated petals. The P. Moutan attains its highest perfection in Japan, where its cultivation amounts to a regular worship. For the grand exhibitions held yearly, a gardener will devote months of patient labour and care to this flower. Each separate plant is placed under a straw-thatch, and given proper nourishment, sunlight and shade, and the result—well, it beggars description. I wish my friends could follow me to the great Pæony-show held yearly by the gardeners in Yokohama. Benches are staged upon benches, and upon these are exhibited these gorgeous flowering-plants in pots. Such size, such glowing colours, and such skill in blending the colour-masses in preparing the exhibition ! The whole show is held in a long building erected of Bamboo-poles, and sheltered with Bamboo-mats— the great building material of the Orient.

All through the day, and far into the night, when the whole is illuminated with gay lanterns and torches, the place is thronged with the flower-loving people, and every European inhabitant of Yokohama is sure to visit the exhibition. Tea, the national beverage, is served to the visitors by smiling little Japanese maidens ; while the men drink to each other solemnly, the stronger Saké, a native spirit prepared from Rice.

Pæonies need but little care. Planting in the open ground can be done either late in "fall" or early in spring. They require a deep rich soil, well trenched, with old rotten manure well incorporated. A top-dressing of manure is beneficial. A partially-sheltered position is desirable. As a foreground to large shrubberies, or in a wide border, or in beds by themselves, they form a beautiful feature in a garden. In winter, in exposed localities, they should be protected by a litter of straw, brush, or mats.

The florists' harvest, however, lies in forcing these royal blooms in pots for Easter. To attain the best results, the dormant plants should be potted, the roots as tightly as possible wedged in the pots, which should be provided with good drainage. The soil should consist of well-rotted old sod and old manure, filling well every interstice. Kept at first in a temperature of 45° to 50°, the plant can, as the leaf-buds swell, be brought into a slightly higher atmosphere. At no time must a Pæony be brought into too high a temperature, as this causes the buds to wilt and dwindle. As soon as the colour shows, liberal doses of manure-water can be given ; in fact, the treatment given the Chrysanthemum to attain the best results answers marvellously well for the Pæony. Also the petals of Pæony flowers, being very delicate, they should be hardened off before being brought to market. Plants of Pæonies which have been forced one year had better be planted in the open ground in "fall," and allowed to rest a season or two.

These royal plants are sure to find a ready sale by those who look for something out of the beaten routine in Easter-flowering plants. *H. H. Berger of New York, in "The Florists' Exchange."*

THE ROSARY.

NEW ROSES OF 1896, 1897, AND 1898.

I DO not propose to discuss more than a dozen of the varieties introduced to commerce during the last three seasons. We naturally know more of the 1896 Roses than others of subsequent date, and there are several really first-class varieties that were introduced during that year. I have fourteen upon my list, but will select the six most distinct. Antoine Rivoire is a variety the result of crossing Dr. Grill and Lady Mary Fitzwilliam. It is a large and full almost Camellia-shaped flower, and in colour is clear flesh-pink with a yellow base, occasionally flushed with carmine. In this Rose we have the free-growing and flowering habit of Dr. Grill, with the erect habit and massive flowers of Lady Mary Fitzwilliam ; it is a grand Rose for cultivation in pots, and can scarcely be put in the wrong position. Ellen Drew is a sport from Duchesse de Morny, and is an exact counterpart of that variety, except that it is clear silvery-pink in colour. Lawrence Allen is rather lighter in shade than Baroness Rothschild, and considerably larger and more full; it has a most delicious perfume. Muriel Grahame needs no further comment than to mention that it is a sport from Catherine Mermet, pale blush-white in colour, and even more free than its parent. Queen Mab is not a good grower, but it is free-flowering, and a useful bedding Rose; the flower is deep apricot in colour, tinged with metallic-red and coppery-salmon. Souvenir de Catherine Guillot is one of the most distinct Roses grown; it is very free, being almost always in flower. The foliage is a deep purple and copper-red, and the buds are long, and produced in trusses. Its colour is difficult to describe, having coppery-red, salmon, crimson, and yellow all mingled together; it is quite one of the best garden and decorative Roses we have.

Out of the twenty varieties upon my list for 1897, I consider the two following most distinct: Duchesse Marie of Ratibor, a cross between Dr. Grill and Kaiserin Augusta Victoria. Both of the parents grow and flower freely, and the offspring retains the parents' characteristics. The flowers are large and well formed, and, like those of K. A. Victoria, they last well. The colour is a clear creamy-yellow, with a reddish-crimson centre. Emanuel Geibel is a decided improvement upon Madame Falcot. The colour is even darker than in that old favourite, while the bud is longer, and develops into a flower full enough for exhibition.

There are fourteen in my list for 1898, and four of them deserve special notice. Beryl affords a golden-yellow shade found in no other Rose. The buds are long, and though not very full, the flower keeps well, and it is a delightful button-hole Rose. It is a very free grower, exceptionally sweet-scented, and is sure to be most popular as a variety for bedding and forcing. Grand Duc Ernest Ludwig is a seedling from Maréchal Niel and General Jacqueminot, retaining the good qualities of both its parents. The plant is of climbing habit, and the flowers are as large and full as those of Maréchal Niel, but of the deep shade of crimson seen in General Jacqueminot. It is a decided acquisition to the climbing varieties, and likely to be much grown in connection with its deep yellow parent. Killarney has long flower-buds, of good form, is soft flesh-salmon and pink in colour, very distinct, and free. Purity makes a grand pillar Rose, is an exceptionally free and early bloomer, and one of the purest whites we have. *A. P.*

Reliable Roses.

The present season is not very favourable for planting Roses—in Scotland at least—by reason of the prevalence of excessive rains. Those cultivators who have unwisely delayed this important work till the month of January, will be beginning by this time to regret their procrastination. Doubtless hybrid perpetuals and hybrid Teas can be planted up to the end of February, under favourable conditions, with comparative safety; but, as a general rule, it is much wiser to plant them on the confines of November, before the season of floods has fairly set in. At present, the weather is a series of unsuccessful attempts at frost, followed invariably by deluges of rain. As those Roses are the most valuable, in this exacting climate, which thrive best under such conditions as these, I have pleasure in recommending to my readers the varieties which have, during the last decade, been most enduring and successful here.

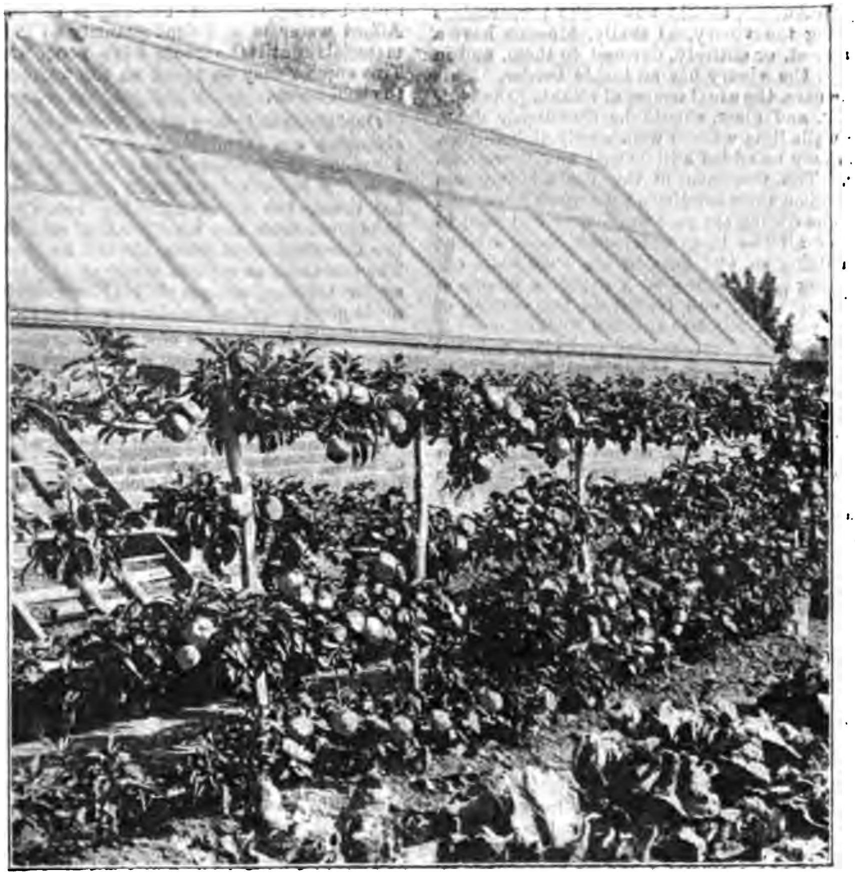


Fig. 18.—An espalier apple-tree at Madresfield Court.

(See p. 50.)

Among hybrid perpetuals, some of the most reliable are Alfred Colomb, A. K. Williams, Beauty of Waltham, Captain Hayward, a very brightly-coloured, free-flowering variety, of recent origination, larger than Mr. Cranston's Crimson Bedder, and equally fragrant, but not so full; Charles Lefebvre, whose popularity knows no diminution either with exhibitors or ordinary cultivators; Cheshunt Scarlet, a precious garden Rose; Crown Prince, Duchess of Bedford, Duke of Edinburgh, and Duke of Wellington, all of which may be described as indispensable. Almost as much may be said of General Jacqueminot, from which many of the grandest of our dark crimson Roses have been derived; Margaret Dickson, almost pure white, and very commanding; Helen Keller, a most beautiful pink Rose, of perfect formation; Earl of Dufferin, Jeannie Dickson, Lady Helen Stewart, and Mrs. Sharman Crawford, raised by the Messrs. Dickson of Newtownards, whose latest productions, such as Ardsrover, Meta, Beryl, Killarney, and Countess of Caledon, are likely to sustain their great reputation. Also much to be commended, after long experience of their capabilities, are Pride of Waltham, Spenser, Clio, and Salamander, Prince Arthur, a distinguished derivative from General Jacqueminot, Susanne-Marie Rodocanachi, an effective contrast in colour to these; Sir Rowland Hill, and Reynolds Hole. Perhaps I should mention, as a warning to cultivators, that the variety last mentioned is not always to be relied upon, as, unlike the majority of its dark crimson contemporaries, it is easily affected by atmospheric influences. In this special respect it much resembles Abel Carrière, and the greatly over-estimated Prince Camille de Rohan.

As a general rule it is advisable, for the sake of root-formation, to transplant hybrid perpetuals once in five years. I find they are, in most instances greatly benefited, both as regards vigorous growth and floral productiveness, by a change of soil.

The most easily cultivated and most profitable of all Roses to the ordinary cultivator, are the hybrid Teas. Of these the finest are the fragrant La France, and her beautiful variations, Augustine Guinoisseau and Duchess of Albany; Caroline Testout, invariably large and imposing in aspect, whose origin has not been very clearly ascertained; Kaiserin Augusta Victoria, a German Rose of exquisite primrose-hue; Viscountess Folkestone, of charming fragrance and marvellous floriferousness; Grace Darling, another very fine production of the late Henry Bennett; Mrs. W. J. Grant and Marquis Litta, both of them recent and great acquisitions; White Lady, the handsome daughter of Lady Mary Fitzwilliam; Barden Job and Gustave Regis, of highly effective and strongly contrasted hues; and those universal favourites, Clara Watson and Gloire Lyonnaise.

China and Polyantha Roses can always be depended upon. They seldom fail. More capricious are the somewhat delicate Noisettes, with a few notable exceptions, such as Aimée Vibert and Caroline Kuster. The greater number of the Tea Roses are now marvellously hardy in their nature, and during the winter require little protection, and the following varieties can be planted as late as the end of February, with every hope of success, viz.: Souvenir d'un Ami and Souvenir de S. A. Prince; Catherine Mermet and The Bride, both of which are of vigorous constitution; Gloire de Dijon, and its more attractive descendants, Bouquet d'Or, and Belle Lyonnaise; Hon. Edith Gifford, Madame Lambard, which flowers luxuriantly, early and late; Madame Hoste, Madame Bravy, and Marie Van Houtte; the artistically-tinted Madame de Watteville; Anna Olivier, a profuse and constant bloomer; Madame Charles; Medea, a superb lemon-coloured variety; Enchantress, Princess Vera, Innocente Pirola, and Perle des Jardins. Pre-eminent among reliable climbing Roses are William Allen Richardson, L'Idéal, Turner's Crimson Rambler, Bouquet d'Or, Climbing Niphetos, Reine Marie Henriette, and Madame Bérard. *David R. Williamson.*

NOVELTIES OF 1898.

(Concluded from p. 34.)

The following novelties and rare plants were illustrated in the *Gardeners' Chronicle* in 1898 (for Orchids, see *ante*, p. 19):—

Alocasia Wavriniana, April 23, p. 243.
Althea × Primrose Gem, August 13, p. 115.
Amaryllis Belladonna, Kew variety, October 29, p. 315.
Anthurium crystallinum illustre, December 10, p. 417.
Adiantum Hemsleyanum, Supplement, May 28.
Asplenium Mayi, June 18, p. 371.
Asplenium nidus multilobulum, January 8, p. 21.
Acalypha Godseffiana, April 23, p. 242.
Acalypha hispida (= Sanderi), April 23, p. 248.
Auricula Abbé Lizst, May 7, p. 285.
Carnation Queen of the Yellows, August 13, p. 125.
Calochortus Purdiei, June 25, p. 395.
Campanula mirabilis, July 9, p. 33.
Ceratolobus Micholitzianus, April 23, p. 251.
Chrysanthemum Golden Shower, December 3, p. 405.
Chrysanthemum R. Hooper Pearson, November 19, p. 369.
Chrysanthemum What Ho, December 3, p. 401.
Chrysanthemum nipponicum, Nov. 12, p. 349.
Dahlia Fantasy, September 24, p. 239.
Davallia fijiensis effusa, May 28, p. 323.
Deutzia corymbiflora, October 8, p. 267.
Dracæna Bromfieldi, Supplement, April 23.
Furcræa Watsoniana, April 23, p. 243.
Geonoma Pynærtiana, April 30, p. 258.
Galanthus cilicicus, February 5, p. 79.
Gymnogramma chrysophylla grandiceps, June 18, p. 373.
Hyacinthus azureus var. giganteus, September 10, p. 191.
Hypoxis longifolia, September 3, p. 177.
Kentia Kersteniana, November 26, p. 391.
Kæmpferia Ethelæ, February 12, p. 94.
Lachenalia pendula Aureliana, April 2, p. 195.
Leea sambucina var., April 23, p. 245.
Ligustrum Walkeri, October 15, p. 282.
Lilium rubellum, May 28, p. 335.
Lobelia Rivoirei, September 24, p. 233.
Lonicera Hildebrandiana, September 17, p. 219.
Linospadix Petrickiana, October 22, p. 299.
Narcissus Lady Margaret Boscawen, May 7, p. 275.
Nepenthes ventricosa, June 18, p. 379.
Passiflora im Thurnii, Mast. sp. n., May 21, p. 307.

Panax Mastersianum, April 23, 242.
Pandanus Sanderi, Supplement, April 23.
Polypodium grande nigrescens, November 19, p. 362.
Pteris serrulata gracilis multiceps, June 18, p. 375.
Pteris cretica Summersii, June 18, p. 370.
Ptychosperma Warleti, April 23, p. 244.
Ptychosperma Sanderi, December 17, p. 435.
Platycerium angolense, March 12, p. 155.
Primrose Evelyn Arkwright, May 7, p. 277.
Phlebodium Mayi, Supplement, May 28.
Pelargonium Spotted Beauty, June 4, p. 349.
Restio F. W. Moore, April 23, p. 251.
Rose Dawn, Supplement, July 23.
Rose Milton, Supplement, July 30.
Rose Enchantress, July 30, p. 89.
Rose Edith Turner, Supplement, August 6.
Rose Psyche, Supplement, May 7.
Veronica Dieffenbachi, August 27, p. 155.
Veronica Lindsayi, November 5, p. 331.

COLONIAL NOTES.

WEST INDIES.

WE have received from Dr. Morris, the Imperial Commissioner of Agriculture, some details of the means he is taking to organise his department. The following is a list of representatives who were invited to attend the first agricultural conference held at Barbados on January 7 and 9, 1899:—

Jamaica.—The Director of Public Gardens and Plantations (William Fawcett, Esq., B.Sc., F.L.S.); the Government and Agricultural Chemist (Francis Watts, Esq., F.I.C., F.C.S.); the Principal of University College, Kingston (Rev. William Simms, M.A.).

British Guiana.—The Government Botanist and Superintendent of the Botanic Gardens (C. S. Jenman, Esq., F.L.S.); the Government Analyst and Professor of Chemistry (Professor J. B. Harrison, M.A., F.I.C., F.C.S.); the Principal of Queen's College (J. A. Potbury, Esq., M.A.); Agricultural and Technical Chemist, Plantation Diamond (William Douglas, Esq., F.I.C., F.C.S.); Agricultural and Technical Chemist to the New Colonial Company, Ltd. (Frederic J. Scard, Esq., F.I.C., F.C.S.).

Trinidad.—The Superintendent of the Royal Botanic Gardens (J. H. Hart, Esq., F.L.S.); Government Analyst and Professor of Chemistry (Professor P. Carmody, F.I.C., F.C.S.); the Inspector of Schools (R. Gervase Bushe, Esq., M.A.); the Principal of Queen's Royal College, (W. Burslem, Esq., M.A.); the Principal of the College of the Immaculate Conception (Rev. W. Caroll).

The Windward Islands.—The Curator, Botanic Station, Grenada (W. E. Broadway, Esq.); the Curator, Botanic Station, St. Vincent (Henry Powell, Esq.); the Curator, Botanic Station, St. Lucia (J. C. Moore, Esq.); the Inspector of Schools, St. Lucia (F. E. Bundy, Esq.).

The Leeward Islands.—The Inspector of Schools for the Leeward Islands (F. H. Watkins, Esq.); Dr. H. A. Alford Nicholls, C.M.G., M.D., F.L.S., &c., author of *Tropical Agriculture*; the Curator, Botanic Station, Dominica (Joseph Jones, Esq.); the Curator, Botanic Station, St. Kitts-Nevis (William Lunt, Esq.).

Barbados.—The Island Professor of Chemistry in chemical charge of Sugar-cane Experiments (Professor J. P. d'Albuquerque, M.A., F.I.C., F.C.S.); the Agricultural Superintendent of Sugar-cane Experiments (J. R. Bovell, Esq., F.L.S., F.C.S.); the acting Chairman of the Education Board (the Hon. W. H. Greaves, Q.C.); the Principal of Codrington College (the Rev. Canon Bindley, M.A., B.D.; the Head Master of Harrison College (Horace Deighton, Esq., M.A., F.R.A.S.); the Inspector of Schools (Rev. J. E. Reece, M.A.).

The proceedings at the Conference were to consist of the reading of brief and well-digested papers, followed by discussion on subjects of immediate interest, the object being to secure common action in ripening questions of great importance to the West Indies. It is desirable, for instance, to arrange for a rapid and economic interchange of seeds and plants between the various botanic centres, to discuss the cultural and chemical experiments to be undertaken during the next few years to improve the saccharine contents of the Sugar-cane, and to sketch the lines on which it may be possible to establish the scientific teaching of agriculture in colleges and schools. Other subjects for discussion are the means to be adopted for securing a more skilful treatment of the soil and the use of manures, a selection of the most suitable economic plants for cultivation in various parts of the West Indies, the establishment of school-gardens, securing effective means for training boys in agricultural pursuits, and the desirability of concerted action to prevent the too rapid spread of fungoid and insect pests.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By W. STRUGNELL, Gardener to the Right Hon. W. H. LONG, Rood Ashton, Trowbridge.

The Muscat Vinery.—Muscat Vines require a long season of growth, and those cultivators who require ripe fruit at the end of the month of July, or early in August, should now make preparations for starting the vinery. Usually, Muscats have a vinery almost, or entirely, devoted to them, and in most cases the vinery has an inside border. This being the case, the usual course of cleaning the roof, woodwork, and glass, should be thoroughly done, and the walls lime-washed with newly-slaked lime, to which may be added a little soot and flowers-of-sulphur. The treatment of the Vines themselves will depend on their condition: if insects have been troublesome during the past year, they will need to be freed of all the loose outer-bark, using a blunt knife in doing so, and cutting the stem-roots off. The clearing away of the bark deprives insects of their hiding-places, and facilitates the coating of the Vines with a mixture adapted to the case. If mealy-bug infests them, gas-tar and clay, reduced to paint-like consistency, is the best kind of mixture, using half-a-pint of tar to a bucketful of clay and water. Though it is a disagreeable preparation to apply, every part of the rods, except the actual buds, should be carefully coated with it, which will soon eradicate mealy-bug, provided the house is otherwise well cleansed. Sulphur and clay makes a good basis for red-spider, thrips, or scale-insects. To this mixture may be added with advantage Gishurst Compound-soap, Fir-tree oil, or sulphide of potassium, in quantity recommended in each by the vendors. The borders should afterwards be lightly pointed up, and as much of the old soil as can conveniently be shovelled up should be taken away, before any new soil is brought in. Muscats delight in heavy soil, kept in a porous state by ample quantities of lime-rubble, old plaster, whether used in extensions of the original border, or as a top-dressing; wood-ashes, as affording potash and charcoal, as tending to keep the soil open, and to retain moisture, and in decay furnishing carbonic acid, by being combined with oxygen. These substances need only to be mixed with the new soil in small quantity. A sprinkling of the artificial manures recommended for Vines may be sprinkled on the border previously, and covered with soil; or the same amount may be well mixed in the compost-heap by turning it over several times. If the border is found upon examination in several parts to be dry, it should be moistened to its full depth with tepid water, but at this early date no more than this should be done. A mulch of fresh stable-litter will tend to prevent a too rapid evaporation of moisture, and reduce the need for repeated applications of water for some time. Having carried out these details, the vinery may be closed, though fire-heat may remain in abeyance for a few days afterwards, and then only be applied to raise the temperature a few degrees. If available, a bed of fermenting leaves and stable-litter would supply the requisite degree of warmth for a time without making use of the apparatus; removing it, however, when leaf-growth has taken place, the exhalations from manure sometimes having an unfavourable effect on tender foliage. Bend the rods of young Vines, these sometimes breaking irregularly; and in all cases, it is well to allow the ends of the rods to hang lower than their usual position. Vines that are growing solely in outside borders, or those having access to outside ones, should be provided with a warm covering, which must be replenished with hot manure as it cools. The warmth in such coverings can be maintained for a long time if shutters, lights, or tarred-felt be used over them. An outside border may be top-dressed similarly to an inside one. In cases where new turf has recently been added to the surface, its removal on outside borders is not advised now, as it does not so soon become sour and exhausted as is the case indoors.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Odontoglossum Edwardi.—This species will probably require attention at this season, as new roots will be emerging from the partially-developed young growths. If the plants have sufficient root-space, and the drainage is ascertained to be in good condition, top-dressing with equal parts of fibrous peat and sphagnum-moss only will be needed, after having picked out a portion of the old materials; on the contrary, if the drainage is imperfect, and the compost sour, carefully remove the plant from its receptacle, pick out the whole of the material about the roots which is not attached to growing roots, remove all decayed roots, and repot in a clean, suitably-sized Orchid-pot, in which the drainage should occupy about two-thirds of the depth. Afford water in sufficient quantity to moisten the materials until the roots have penetrated them. This species may be stood at the warmest part of the cool-house.

Oncidiums.—Among other Orchids that may need attention are O. macranthum, O. undulatum, O. Leopoldi, O. zebrinum, and others of the same type. A large proportion of moss should be used for them, the roots rambling readily in living sphagnum-moss, and a very moist, cool position in the Odontoglossum-house should be given them. The same rule as regards water should be observed as for Odontoglossums, but after the roots have made good progress abundance will be needed.

Miltonia vexillaria is now in an advanced stage of growth, and watchfulness on the part of the cultivator will be needed to ease with the budding-knife all leaves whose edges are stuck together. The plants should be afforded full light, and be kept on the dry side all through the winter months, or weak, sickly growth will result, and, before the flower-spikes show, the black spot would appear. Afford light fumigations frequently as a preventative of thrips. Plants of Miltonia Clowesii growing in the Cattleya-house are now making roots, and if new materials are needed, the present is a good time to afford them. From the time the flower-spikes were cut, our plants of this species have been kept fairly dry at the root, but now that rooting has begun, more frequent and more applications of water will be made.

Deciduous Dendrobiums.—Under this heading, a large number of valuable spring-flowering plants are included, of which Dendrobium Wardianum is doubtless the best; then D. crassinode, whose variety Barberianum is a high-coloured form. Both plants are now showing flower-buds, and breaking into growth. To prevent these young growths making untoward progress, the plants should still be kept in a light, cool, well-ventilated house, and only afforded water when the last-made pseudo-bulbs show signs of shrivelling. The Hawthorn-scented D. aureum, now in bloom, may remain in the East India-house the whole year, but excepting when rooting freely, it will need water but seldom. Plants of D. Bensoniæ, if thoroughly matured, will very seldom require water during the resting period, neither will those of D. Parishi and D. polyphlebium. Dendrobiums primulinum, crepidatum, cretaceum, Devonianum, Boxalli, transparens, and lituiflorum, are resting at the cooler part of the Cattleya-house, and are afforded just enough water as will prevent much shrivelling. Here I grow B. chrysanthum, which is now beginning to grow, but which will take no harm if kept dry at the root for some considerable length of time yet.

PLANTS UNDER GLASS.

By C. R. FIELDER, Gardener to the DOWAGER LADY HOWARD DE WALDEN, St. James's House, Malvern.

Richardia Elliottiana.—Old tubers of this plant which have been kept in a dry state may now be examined, and those showing signs of starting into growth should be potted. The dormant tubers may be left until a later date, if a long succession of spathes is required; but in no case ought the repotting to be delayed after growth commences. A suitable compost consists of three parts turfy loam, one part peat or leaf-soil, and some silver-sand. In potting, half fill the pot with soil, and press it firmly, and upon this basis place the tuber, sprinkling it with silver-sand, and then fill the pot with soil to within 1 inch of the rim. Place the pots in the stove, and afford water very carefully till the roots reach the sides of the pots, in order to guard against decay. Once started, the growth is rapid, and plenty of water is required. When the flowering stage is reached, the plants should be removed from the stove to an intermediate temperature in order to lengthen the life of the spathes. When the foliage begins to turn yellow, the amount of water afforded should be reduced; and by the time it has died down, the soil should have been allowed to get quite dry. It is most important that it be kept in that condition until the tubers again start of themselves into growth. Speaking roughly, Richardia Elliottiana requires the same sort of treatment as Caladiums.

Phyllocactus should be very sparingly watered during the winter, otherwise they are apt to get into a sickly condition, consequent upon a loss of roots. It will be sufficient for the present if just enough water is afforded to keep the foliage in a plump condition. Plants which have got into an unhealthy state should have the soil shaken from the roots, dead portions of the latter removed with the knife, and the plants re-potted, using as small a pot as possible, and a compost afforded which consists of loam, a little peat, and a liberal allowance of sand and finely-broken brick-rubble or crocks, and be placed near the glass in a temperature of from 50° to 55°.

Libonia floribunda and L. Penrhosiensis ×.—When these very useful winter-flowering plants go out of flower the shoots should be cut back, and the plants introduced to heat, in order that they may produce shoots fit for making cuttings. These strike readily, and when rooted they should be potted into small pots and grown on in heat for a time, taking the points out of the shoots occasionally, so as to induce bushiness.

Tuberous-rooted Begonias.—Seed should now be sown if good-sized flowering plants are required in the current year. The seed-pots should be half filled with crocks, and filled up to within half-an-inch of the rim with a finely-sifted mixture of equal parts sandly loam and leaf-soil, with silver-sand in sufficient quantity to make the whole porous. Press this down evenly with the flat bottom of a flower-pot, sow the seed thinly, and cover it with a slight sprinkle of silver-sand; then afford water by holding the seed-pot in a pailful of water which must come upwards through the hole in the bottom until the sand upon the surface appears damp. It is best to afford water in this manner till the seedlings have taken firm hold of the soil, the seeds being so minute that they are liable to be washed from one side of the pot to the other each time water is afforded through a rose, however fine it may be. Cover the pots with a piece of glass, and place them in the stove or on a hot-bed, and shade carefully.

THE KITCHEN GARDEN

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

French Beans.—I was never very successful with the forcing of French Beans during the most sunless part of the winter, the crop, as a rule, being scanty indeed, and scarcely worth the trouble and expense of cultivation; but as the light increased the crops were more plentiful, and the pods had more substance. The variety Ne Plus Ultra is one of the most valuable varieties for an early crop, usually producing great quantities of straight pods. For the first crop the use of pots is to be recommended, placing four to six beans in each according to size of pot used; 24's are sufficiently large for the early crop. The compost used should be sweet and moderately light, and may consist of loam mixed with spent Mushroom-bed manure, or leaf-mould, not much decayed. The pots should be well drained, and then filled to within 3 inches of the rim, and having made firm, press the seeds into the soil 1 inch, or sow on the surface and cover to that depth. Stand the pots in a temperature of 60° to 65°, with a brisk rise with sunshine. Keep the atmosphere moist. Unless the soil gets very dry, afford no water till the young plants show through the soil; and when the plants are well up syringe with tepid water moderately twice daily in bright weather. Tap the pots frequently, affording water when required; and before the plants fall over and get damaged, put twigs round the pots to support the plants, which will allow of the syringe being used with force, otherwise red-spider and thrips will put in appearance and give the gardener much trouble. When the plants are in bloom, lessen the amount of humidity in the air, and dispense with the syringe till the pods have formed, when the previous treatment may be resumed. If suitably heated pits or small span-roofed houses are at command, French Beans do well planted out singly at a distance of 6 to 7 inches from bean to bean, and 12 inches betwixt the rows. Beans require ventilating to keep the plants healthy, but it should be done so as not to chill them. If a bed is not at liberty, sow half-a-dozen seeds in a sufficient number of large 60-pots, and plant out those with as little disturbance of the roots as may be, later on.

Broccoli.—The self-protecting autumn varieties being now over, the next to follow will be Snow's Winter White, the stock of which should be looked over at short intervals of time, and the leaves turned over such heads as are of suitable size; or dig up the plants, and replant closely together on a south border, or lay them in by the heels in frames where in severe weather they may be protected.

Beet.—Although the roots are usually taken up early in the autumn and placed under cover, I much prefer to select the more suitable size, and lay-in close together in trenches on a sheltered border, and protect them with litter, bracken, or fine coal-ashes. By this method they keep fresh, and of good flavour. Carrots, Parsley, Salsafy, and Parsnips may be wintered in a similar manner.

Potatos.—Let the tubers in store be examined on wet days, removing decayed ones, and rubbing off the sprouts. Seed Potatos should be laid out thinly, so that sprouting will be delayed to the latest date. Keep all Potatos cool, short of freezing.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener, Dropmore, Maidenhead.

Raspberry Plantations may yet be made in open weather if the ground be not too wet for manipulation, and all work of this kind should be finished off within the next few weeks at the latest. Raspberry-plants being usually allowed to remain five or six years without disturbance, the ground should be trenched 2 feet deep, and heavily manured at each spit dug. Soil of a light nature rather than clayey is the best adapted for Raspberry culture, and where the latter prevails, leaf-mould, charred garden-refuse, lime-rubble, sandy road-parings, and such like should be incorporated with the staple in lieu of heavy manure, the latter being used with advantage on light soils. Assuming that the trenching has been finished long enough, a week at least, to allow of a settlement of the soil to take place, the planting the canes may then be carried out. The manner of training to be adopted must, to some extent, regulate the manner of planting, and canes of medium strength should be chosen. One of the simplest methods of training is to tie the canes to a couple of lengths of galvanised iron wires stretched horizontally, using a sufficient number of upright posts to ensure stability, the end posts being stouter than the others. The rows may be 5 feet apart, and the single canes 2 feet. The canes should be tied loosely to the wires, and in a few weeks they may be cut down to within two or three eyes, or about a foot of the soil. If grown in clumps of canes fastened to stakes, three canes should be planted together at 4 feet apart in the row, or these may be tied over eventually half to the right and to the left, in the form of an arch when tied together, to the point or crown of which a stake is placed to tie the canes to, thus forming a series of low arches. Market-growers plant thus, but usually cut the canes to about 3 feet in height, and use no supports.

Varieties. — The largest-fruited Raspberry is Superlative, a strong grower and heavy cropper, of fairly good flavour, and useful for dessert. Baumforth's Seedling is a large and free-fruiting variety, of good flavour; while Carter's Prolific is older, and one that is largely grown for market purposes. Semper Fidelis is a useful and heavy-cropping variety; the fruits are of a bright colour and acid, but making an excellent preserve, and one of the best for making Raspberry-vinegar. It is also a rather later fruiting variety than either of the preceding, and should be grown where a long season of these fruits is desired. Belle de Fontenay is the best of the autumnal fruiting kinds. All newly-planted canes should be mulched with half-rotten or rather littery manure

The Pruning of Outdoor Grape-vines should be carried out now, before the sap begins to flow. The aim of the pruner should be to secure a good quantity of well-ripened young shoots, and ample space should be allowed between the branches to admit of light and air to reach them. Old and much spurred-in branches may be removed, thus making room for young, strong, well-ripened, fruitful wood. A rich top-dressing should also be applied to the border if growth is unsatisfactory, some of the old soil being removed down to the roots, and new loam and bone-meal substituted. A mulch of half-rotted manure may be given. The Sweetwater is the best outdoor variety of Grape.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Japanese Maples.—These small-growing Japanese trees are admirably adapted for planting in groups, and as single specimens on lawns. They are low-growing deciduous trees, with erect stems; the branches are spreading, and furnish the tree down to the ground. Some we have planted in sheltered positions, but our finest specimens are planted on the lawn, fully exposed to the wind and sun. These are 15 feet high, and 42 feet in circumference. Acer palmatum has seven-lobed leaves, elegantly notched and toothed, and when planted in the open the leaves are of a bronzy-green colour. The best varieties are Acer p. atropurpureum (the boldest of the type), having deep purple leaves; A. p. sanguineum, similar to the former, with leaves of a deep blood-red; A. p. ampelopsifolium, very fine in growth, of more spreading habit, leaves purple in spring, bronzy-green in summer, and superb crimson colour in autumn; A. p. dissectum, leaves of a deep red colour, finely cut and serrated, resembling a Fern; A. p. palmatifidum, similar in growth and habit to dissectum, leaves green; A. p. septemilobum, leaves green in summer, turning to a brilliant crimson colour in autumn; A. p. roseum and A. p. roseum marginatum are of too delicate a constitution to be planted outside, but, succeed well when grown in pots. Acer japonicum and its variety A. j. vitifolium are less hardy than A. palmatum, but planted on elevated ground and in less exposed positions they may succeed. It has handsome Vine-like leaves, which assume a very rich colour in autumn. These Maples thrive best when planted in a good rich, sandy loam about 3 feet deep. The soil should be made firm by treading before planting, to prevent the tree from sinking. Abundance of water should be given during a dry season. The severest winters do not harm them, but late spring frosts about the second week in May will kill the young growths. The lower placed buds then burst into growth, and the trees soon recover. Do not prune, as doing so spoils the character of the trees.

Bedding Plants.—A number of plants of which the stock is usually raised in the spring from cuttings, or is insufficient in point of numbers, should be placed in gentle warmth, say, that of a vinery recently started, in order that they may make growth ere cuttings are taken. These may consist of zonal Pelargoniums, Ivy-leaf, variegated, and sweet-scented Verbenas, Lobelia Erinus varieties, Fuchsias, Heliotropes, Gazanias, Jacobeas, Sweet Aloysia, &c. It will suffice to sprinkle the plants night and morning. Afford them water in increasing quantities as growth progresses, but do not divide up potfuls of cuttings till the first crop of shoots has been taken. Dahlias, of which but few examples exist, may be put into flat hampers or deep cutting-boxes, and covered with leaf-soil, in order that they may push early shoots fit for making cuttings. Lantanas, handsome either in vases as centres of beds, and subjects for planting in hot corners, may be placed in heat to push out shoots. These plants should not be cut back more than once, or they will flower badly. The current season's struck plants are not to be depended upon to flower much, but there are some new varieties which bloom well the first year. Seeds of the Canna may now be sown in hot-beds, also those of Wigandia caracasana, and the large-growing foliage Solanums, continue to cultivate the seedlings in a good degree of warmth till the middle of March, the object being to secure large plants by May.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	JAN. 28	—Royal Botanic Soc. meet.
TUESDAY,	JAN. 31	—Royal Hort. Soc. Committees.
THURSDAY,	FEB. 2	—Linnean Soc. meet.

SALES.

MONDAY,	JAN. 30	Roses, Lilies, Gloxinias, Hardy Border Plants, &c., at Protheroe & Morris' Rooms.
TUESDAY,	JAN. 31	Carnations, Lily of the Valley, Pæonies, at Protheroe & Morris' Rooms.
WEDNESDAY,	FEB. 1	Japanese Lilies. 1000 Roses, Shrubs, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 2	Hardy Perennials, Spiræas, Roses, Carnations, &c., at Protheroe & Morris Rooms.
FRIDAY.	FEB. 3	Pæonies, Hollyhocks, Hardy Border Plants, &c., at Protheroe & Morris' Rooms. Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—39·1°.

ACTUAL TEMPERATURES:—

LONDON.—*January* 25 (6 P.M.): Max., 41°; Min., 32°.

PROVINCES.—*January* 25 (6 P.M.): Max., 47°, Valentia; Min., 32°, Aberdeen.

Easterly winds, bright, fine, slight frost.

Mr. JOHN LEE.

THE death, on the 20th inst., of Mr. JOHN LEE, of Hammersmith, in his ninety-fourth year, is, in many ways, a notable circumstance. To the younger members of the present generation JOHN LEE was as a name only; he had outlived most of his older associates, and for the last few years had rarely been seen among us. Nevertheless, there are very many who remember him as the genial President of the Horticultural Club, and still more who associate him with the "Gardeners' Benevolent." He lived scarcely a day after the annual meeting noted in our columns last week. For how many years he had been a member of the Society we do not exactly know, but until the last three or four years he had never missed attendance at the annual meeting for a period of at least fifty years. He was, in fact, the Father of the Society, and we have heard him allude to the anxiety which he and his associates felt in the very early days of the Institution lest the funds in hand should not be adequate to the payment of the pensions to the two or three annuitants who then were the only members of the pension list.

He lived to see the Institution in its present flourishing condition, and had the satisfaction of knowing that he himself had, by his own exertions, largely contributed to make it what it now is. A legacy of £100, free of duty, shows that he did not wish his interest in the Institution to be terminated by his death.

JOHN LEE, from the great age to which he had attained, and the abundant experience he had enjoyed, had encyclopædic knowledge which he was always pleased to impart to his younger associates. Up till the last few years he was a constant visitor at the meetings of the Royal Horticultural Society, and was enabled to render great service to the Fruit Committee from his extensive knowledge of the history and the comparative merits of fruits.

In 1877 a dinner, presided over by Dr. HOGG, was given in his honour by the members of the Horticultural Club, on the occasion of his retiring from business; and in 1882 a similar compliment was paid to him, when a service of plate was presented by the officers of the Gardeners' Benevolent, in recognition of his having acted as Trustee for forty years, and as Chairman of the Committee for nearly the whole of that period. The latter office, indeed, he filled up to the last few years. His portrait hangs in the meeting-room of the Horticultural Club; and a photographic illustration was given in our columns in 1893, p. 259.

At the funeral on the 25th inst., in Brompton Cemetery, the Gardeners' Royal Benevolent was represented by Messrs. H. J. VEITCH, SHERWOOD, MONRO, INGRAM, and others. Mr. OWEN THOMAS, R. M. HOGG, Mr. WRIGHT, Dr. MASTERS, and others were also present. One of the wreaths, consisting of white Arums, Eucharis, Lilies, Lilies of the Valley, Azaleas, &c., was sent by the Committee, "In Memory of the Father of the Gardeners' Royal Benevolent Institution."

JOHN LEE was originally connected with the famous firm of nurserymen at Hammersmith. Together with his brother CHARLES, who died in 1881, he successfully conducted this great business, but retired some years since. The Hammersmith nurseries — the original nucleus—have long since been built over. A similar fate has overtaken the nurseries of the firm at Ealing, but a large business is still carried on at Feltham.

Lee's nursery was one of the "all-round nurseries" which are now rapidly disappearing. Nurserymen now-a-days have to specialise and devote their attention principally to one or to a comparatively few subjects. The result is not altogether satisfactory in one respect, as the knowledge of plants in general now possessed by the men of business is necessarily less than it was in the times of their predecessors.

The Hammersmith nursery in bye-gone days was the source whence numerous "new plants" from the Cape of Good Hope were distributed, MASSON and other collectors having relations with the firm. The founder of the firm was JAMES LEE, who, as JOHNSON tells us in his *History of English Gardening*, was for some time with PHILIP MILLER at Chelsea, and afterwards gardener to the Duke of ARGYLL at Whitton Park, where a fine collection of trees was got together. Subsequently, in connection with KENNEDY, he established the Vineyard Nursery at Hammersmith. His death took place in 1797.

A short statement relating to the further history of the firm was given in our columns in a former volume. It is of such interest that we feel justified in reproducing the substance of it at the present time:—

"Mr. JAS. LEE, who established the nursery, was born at Selkirk in 1715. When he first came to London he was employed at Syon, and afterwards at Whitton, by the Duke of ARGYLL. About the year 1760 he entered into partnership with Mr. LEWIS KENNEDY, gr. to Lord BOLTON, at Chiswick, and commenced a nursery, in what was called The Vineyard, at Hammersmith. About the middle of the last century this vineyard produced annually a considerable quantity of Burgundy wine. A thatched house was built in the grounds; the upper part was used as a dwelling-house, and for selling the wine, and underneath were the wine-cellars. The house was formerly occupied by WORLIDGE, the celebrated engraver, and here he executed the most valuable and admired of his works. Mr. LEE was patronised by the Earl of ISLAY, afterwards Duke of ARGYLL, the planter of Whitton, who died in 1761, and other noblemen; he corresponded with LINNÆUS, and compiled from his writings *An Introduction to Botany*, published in 1760, which went through five editions, and for many years was in the highest repute. He died in the year 1795, at the age of eighty years, his partner, Mr. KENNEDY, having died previously.

The nursery was carried on by the sons of the two founders till 1817, when they dissolved partnership. It then became the sole property of JAMES LEE, the second, who died in 1824, leaving it to his family. In 1827 JOHN LEE was joined in the conduct of this important business by his brother CHARLES, who was born at the Royal Vineyard Nursery on February 8, 1808, and died on September 2, 1881. The firm was conducted under the title of JOHN & CHARLES LEE till 1877, when Mr. JOHN LEE retired, and WILLIAM LEE, the son of CHARLES, joined his father in the management of the business. In 1881, however, upon the death of CHARLES LEE, the veteran JOHN again, for a time, accepted harness, coming to the assistance of his nephew, who was very deeply affected by the loss of his father.

Besides an extensive correspondence, and a [illegible]lant attention to procure every new plant as [illegible] as it was introduced by others, Messrs. L[illegible] KENNEDY introduced many plants into the cou[illegible] through collectors whom they had sent abroad, [illegible] through foreign botanists. They maintain[illegible] collector in America, who sent home several [illegible] Oaks, and in partnership with the Em[illegible] Josephine, one at the Cape of Good Hope, who [illegible] home many new Ericas, Ixias, and other [illegible] plants. To this firm it is, also, we owe the [illegible] Fuchsia, and what that means to the sum of hu[illegible] happiness, every gardener, every cottager even, [illegible] appreciate. They also had the first China Rose, [illegible] 1787."

LINNEAN SOCIETY.—At the evening meeting intended to be held on Thursday, February 2, 1899, at 8 P.M., the following papers will be read:—1, "Notes on the Genus Nanomitrium, Lindberg," by Mr. E. STANLEY SALMON. 2, "On the production of apospory in Athyrium Filix-fœmina var. uncoglomeratum, an apparently barren Fern," by Dr. F. W. STANSFIELD. 3, "On the Genus Lemnalia, Gray, with an account of the branching systems of the order Alcyonacea," by Mr. GILBERT C. BOURNE, M.A., F.L.S., &c.

ROYAL HORTICULTURAL SOCIETY.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, Jan. 31, in the Drill Hall, James Street, Westminster, from 1 to 4 P.M. This will be the last meeting of the 1898-99 committees, the new ones coming into office on Feb. 14. A lecture on "Twelve Months among the Orchards of Nova Scotia," will be given by Mr. CECIL H. HOOPER, F.R.H.S., at 3 o'clock: and Mr. ARTHUR SUTTON will give details of some of his remarkable experiments with Potatos at the Scientific Committee at 4 P.M.

GRANT OF £100 TO THE ROYAL BOTANIC SOCIETY.—The London County Council has just given its second annual contribution of £100 to the "practical gardening school," which is held in the gardens of the Royal Botanic Society at Regent's Park. This grant is made yearly on condition that the school receive a number of boys up to ten, who are to undergo a three-year course of instruction in all branches of practical gardening.

LODDIGES' LIBRARY.—It is singular that at a time when we are recalling memories of a famous nursery at Hammersmith, we should also have our attention called to a nursery that once enjoyed the highest reputation at Hackney. An announcement of the sale, at PUTTICK & SIMPSON'S, of the library of the late C. LODDIGES, who died in 1846, will bring to the mind of some the then wonderful collections of Orchids, Succulent plants, Palms, and other exotic plants, many of which figures were given in LODDIGES' *Botanical Cabinet.* The library to be sold comprises among other things: *Curtis's Botanical Magazine*, 93 vols.; *Paxton's Magazine of Botany; Sloane's Jamaica; Elliott's Botany of South Carolina; Lindley's Rosarum Monographia; Parkinson's Herball; Roxburgh's Plants of Coromandel; Plantes des Brasiliens; Andrews's Engravings of Heaths*, 4 vols.; *Gerarde's Herball*, 1636; *Flora Peruviana et Chilensis*, 4 vols.; *Edward's Botanical Register*, 34 vols.; *Andrews's Roses and Geraniums; and Chandler's Illustrations of Camellias.*

HONOURS TO FRENCH HORTICULTURISTS.—M. CHARLES JOLY.—It is with a feeling of satisfaction that we learn that this energetic horticulturist has been nominated a Chevalier of the Legion of Honour by the French Government. It is a matter for surprise to outsiders that this distinction was not conferred long ago; but in any case they desire to participate in the congratulations tendered to this zealous friend of horticulture.

M. HENRI LÉVÊQUE DE VILMORIN has been promoted to the grade of "officer" of the "Mérite Agricole;" but no honour of this kind, in the case of M. DE VILMORIN, can add to the esteem in which he is held by his fellows on this side of the Channel.

SCOTS FIR CONES AND THE PINE GROSBEAKS.—Mr. F. B. DOVETON, Karsfield, Torquay, in a communication addressed to the editor of the *Westminster Gazette*, January 18, says:—"It may interest your readers to learn that I saw a pair of Pine Grosbeaks (Loxia enucleator) in a road close to this on the 10th inst. They were feeding on the cones of a Scotch Fir, and excavating them with their sharp beaks, now and then dropping them on the ground. They were very tame, and I could hardly be mistaken, as I watched them for some time, and was very close. They resemble and are allied to the loopbills, but are larger and more slender. The male might have been from 7½ to 8 inches in length. His head, throat, and breast were of a bright carmine, and his back of a dusky-red. The female was more of a greenish-yellow all over, and wanted the carmine on the head and breast. These are birds of the North, and are very rare visitors to this country, I believe."

RHODODENDRON CILIICALYX.—This is the name of a new Rhododendron discovered by the Abbé Delavay, in Yunnan, and figured by M. ANDRÉ, in the *Revue Horticole* of the 16th inst. The leaves resemble those of R. ciliatum, and the flowers, which are between 4 and 5 inches across, are widely campanulate and white, flushed with violet. The calyx is less than a quarter-of-an-inch long, with rounded lobes, bordered with long hairs. The plant has flowered in the garden of M. MILNE EDWARDS. R. ciliicalyx, with no fewer than thirty-five other species from the same region, was described by M. FRANCHET, in the *Bulletin Soc. Botan. France*, xxxiii., p. 223, and yet there are those who consider that there are no more worlds to conquer in the department of systematic botany!

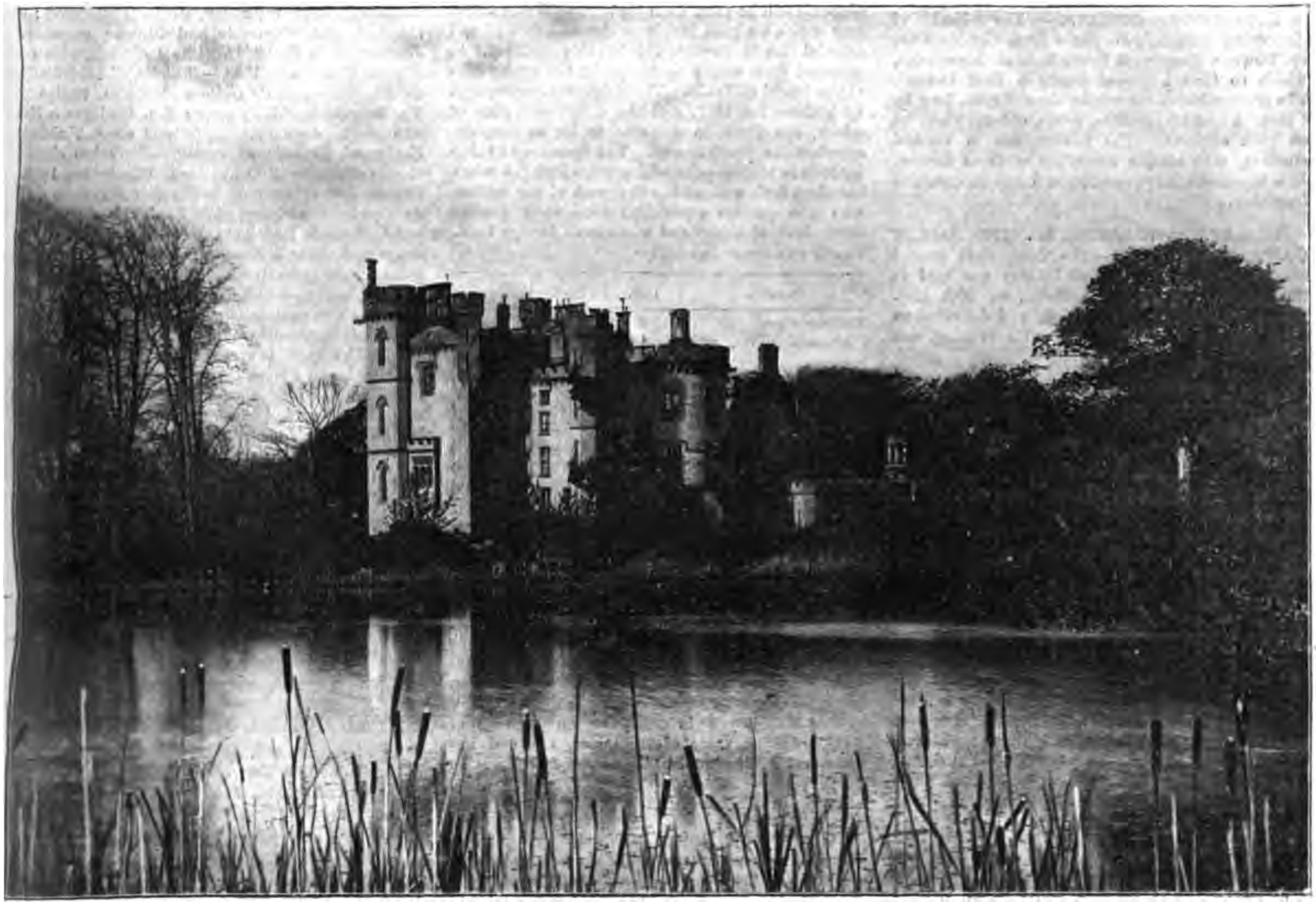


FIG. 19.—DUNS CASTLE, BERWICKSHIRE. (SEE P. 49.)

DATE OF FLOWERING OF THE SNOWDROP.—The Snowdrop was first observed in bloom in a Middlesex garden on Jan. 22 this year. In the same garden and in the same border the dates of flowering since 1890 were as follows:—1890, Jan. 9; 1891, Feb. 6; 1892, Jan. 22; 1893, Jan. 30; 1894, Jan. 21; 1895, Jan. 17; 1896, Jan. 16; 1897, not recorded; 1898, Jan. 18; 1899, Jan. 22; the 9th of Jan. being the earliest date; Feb. 6, or the thirty-seventh day of the year, the latest. The Hazel was observed in bloom on Jan. 21, but was seen some days earlier in the same neighbourhood. In 1894 the Hazel was recorded to be in bloom on Dec. 30, the usual dates being among the earliest days in February.

EUROPEAN ORCHIDS.—M. CORREVON, of the Jardin Alpin d'Acclimatation, 2, Rue Dancet, Geneva, is about to issue, if a sufficient number of subscribers be forthcoming, a series of sixty octavo coloured plates, representing the hardy terrestrial Orchids of Central Europe, with accompanying text. We have seen some of the plates, and can speak favourably of them as accurate representations of the plants. A subscription of 17*s*. will ensure the possession of what will evidently be a very useful publication.

EUCALYPTUS CORDATA. — The Earl of ANNESLEY obligingly forwards from Castlewellan, co. Down, a spray with flower-buds of this species, which so far has proved hardy in East Ireland. The mature leaves are sessile, about 5 cent. long by 4 cent. in breadth, cordate, ovate, obtuse, glaucous on both surfaces. The flowers are in stalked clusters, each cluster consisting of three flowers. It is handsome in appearance, and has an aromatic fragrance.

PAISLEY HORTICULTURAL SOCIETY: PAISLEY GARDENERS' RÉUNION.—The thirty-sixth annual *réunion* of the gardeners of Paisley was held in the "George" Temperance Hotel, on 20th inst. Mr. JAMES ANDERSON presided, and delivered an interesting address. An enjoyable evening was spent.

SCIENCE TEACHING IN HORTICULTURE.—A meeting will be held to arrange preliminaries for a class, at 2, The Broadway, Hammersmith, on Monday, January 30, at 8 P.M. The class is intended as a preparation for the Royal Horticultural Society's examination; it will meet on two nights a week, and will be conducted by WILFRED MARK WEBB, F.L.S., late assistant-biologist in the School of Horticulture of the Essex County Council, Chelmsford.

THE GARDENS AND GARDENER AT COMBE ABBEY.—In reference to an article under the above heading which appeared in our issue for Sept. 24 last, it may be interesting to state that Mr. WILLIAM MILLER, who has since resigned the superintendence of these gardens, is now busy forming a nursery for the cultivation of choice hardy plants. Mr. MILLER has built a very charming residence a short distance out of Coventry, and it is surrounded by several acres of land. His address is now "Raylands," Berkswell, near Coventry.

THE EFFECTS OF THE MILD WEATHER are, in some instances, very striking, as we are told by a correspondent at Backett, Shrivenham, that at that place a pyramid Pear-tree in an exposed site is covered with open blossom; at Walcott Hall, Stamford, a young tree of Apple Deux Ans is bearing a second crop of fruit, and two fruits are sent, one 2 inches in diameter, and another half that size. In the same gardens, Strawberries have set two dozen fruits per plant—of course, only to succumb later.

TRADESCANTIA VIRGINICA.—Microscopists of the middle of the waning century, and of earlier periods, will remember how they were wont to examine the movement of the juices in the cells springing from the stamens of this plant. A complete anatomical monograph of the plant, from the pen of M. GRAVIS,* the Professor of Botany in the University of Liège, will be referred to with great interest. The introduction supplies an historical summary of the principal publications relating to the histology of monocotyledonous plants in general, and of the Commelynaceæ in particular, a summary which will be of great utility to students. M. GRAVIS then proceeds to give an exhaustive account of the anatomy of Tradescantia virginica in all its stages of growth, and concludes with a *résumé* of the principal results and conclusions arrived at, and especially those which possess novel features. A full bibliography is given, and the subject is illustrated by twenty-seven quarto lithographic plates. To discuss the details of such a work of *longue haleine* as this is impossible in this place. Suffice it to say, that the work is a monument of painstaking research, which, like the similar monograph of Urtica, redounds to the honour of Belgian science, and to the credit of M. GRAVIS.

VALUE OF FRUIT IMPORTS.—Almost at a glance it will be seen, from the accompanying table, how much we paid last year for the foreign and colonial fruits imported into this country, as reported from month to month by the authorities of the Board of Trade. These figures are compared with those for 1897, and the differences, plus or minus, are given, in order to, as far as possible, complete the year's record. The decrease in value for 1898 is trifling—the selling price brought much excellent fruit well within the reach of the masses, who (the juniors especially) voraciously availed themselves of cheap and wholesome foreign fruit. The figures are as follows:—

IMPORTS.	1897.	1898.	Difference.
Fruits, raw:—	£	£	£
Almonds ... ... value	436,428	553,431	+117,003
Apples ... ... "	1,187,303	1,107,058	−80,245
Cherries ... ... "	178,131	230,828	+62,697
Grapes ... ... "	495,017	549,513	+54,496
Lemons ... ... "	410,150	439,286	+29,136
Nuts, used as fruit "	501,356	575 598	+74,242
Oranges ... ... "	2,266,920	1,986,160	−260,760
Pears ... ... "	377,909	221,772	−156,128
Plums ... ... "	497,783	434,666	−63,117
Unenumerated, raw "	695,159	870,711	+175,552
Total £	7,046,147	6,969,023	−£77,124

We may be permitted to add here the values of the following items, to complete the tale, for the year, as told month by month. Thus, in 1897, Onions were imported to the value of £760,560, against £792,907, an increase of £32,347. The Potatos imported in 1897 were valued at £1,200,328, against £1,913,912 in 1898, or an increase of £713,584; the value of vegetables, raw and unenumerated, amounted to the sum of £1,456,701 in 1897, against £1,680,734 in the year following, showing an increase of £224,033.

GARDENERS' ROYAL BENEVOLENT.—At the dinner of the committee, held after the business of the annual meeting had been concluded, Mr. HARRY VEITCH, the Treasurer, announced the establishment of a Samaritan Fund, the interest of which would be distributed among unsuccessful candidates who had not been subscribers, the Victorian Era Fund being reserved exclusively for the benefit of those who have been subscribers. It was announced that the Earl of DERBY would preside at the annual dinner on July 28.

PUBLICATIONS RECEIVED. — *Nature Notes*, Jan. 1899.—*Contributions to the Flora of New Guinea and Queensland*, by F. Manson Bailey, F.L.S.—Extracts from the *Queensland Agricultural Journal*, vol. iii., parts 3, 4, and 5, for September, October, and November, 1898.—*Preliminary Study of the Prickly Pears naturalised in New South Wales*: J. H. Maiden, Department of Agriculture, Sydney, New South Wales. — *Proceedings of the Tenth Annual Meeting of the Association of Economic Entomologists*, U. S. Department of Agriculture, Division of Entomology, Bulletin No. 17.—*Selleriplantens, Historie, Udbredelse og Anvendelse*, Carl Hansen, Copenhagen. — *Botanisches Centralblatt*, Band LXXVII, No. 1, 1899; Westnik, Transactions of the St. Petersburg Horticultural Society.—*Transactions of the English Arboricultural Society*, vol. iv., part 1. Including the report of the seventeenth annual meeting at Penrith in August last, and papers on: Different Methods adopted in the Measurement of Standing and Felled Timber, by T. Bright; Planting, Maintenance and Management of a Plantation for the first Twenty-five Years, by Edward Dalglish; and on various allied subjects.—*Chemical Manures and Garden Crops*, lecture by F. W. E. Shrivell, Golden Green, Tonbridge, delivered before the Devon and Exeter Gardeners' Association, November, 1898.—*Proceedings and Journal of the Agricultural and Horticultural Society of India*, July to September, 1898.—*Agricultural Gazette of New South Wales*, November, 1898. This contains articles and notes on the Ramie Fibre Plant, by H. V. Jackson; Pine-apple Growing; Aspinwall Potato Planter, J. L. Thompson; the Orchard, and Vegetable and Flower growing.—*Journal de la Société Nationale d'Horticulture de France*, December, 1898.—*Bulletin d'Arboriculture de Floriculture et de Culture Potagère*, rédigé par Fr. Burvenich, Ed. Pynaert; Em. Rodigas & Hub. van Hulle, January.—*Tijdschrift voor Tuinbouw* Zesde und Zevende aflevering.—*Bulletino della R. Societa Toscana di Orticultura*, Dicembre, 1898.—*Plantas novas Cultivadas no Jardim Botanico do Rio de Janeiro*, descriptas, classificadas e desenhadas, por J. Barbosa Rodrigues, VI.—*Plantæ Mattogrossenses ou Relacao de Plantas Novas*, colhidas, classificadas e desenhadas, por y. Borbosa Rodrigues (Directeur du Jardin).—*Wells Chrysanthemum Calendar*. A large sheet containing directions as to the cultivation of Chrysanthemums in each month of the year. The sheet is given an imposing appearance by the large illustrations of half-a-dozen or so selected novelties. Useful for posting in the potting-shed or garden-office. (W. Wells, Earlswood, Redhill.)—*On Lawns and Lawn Tennis, Cricket, Golf, and other Grassy Grounds*, by Jas. Carter & Co., High Holborn, London, W.C.—*Isle of Wight Horticultural Improvement Association Almanack for* 1899. A large sheet Calendar, containing a list of the membership of the society, and much information, more particularly interesting to gardeners living upon the island. A Calendar of garden operations for the year, &c. The sheet is illustrated by a photograph of Sir Chas. Seeley, Bt., president of the society, and a scene from one of the island gardens.

ROYAL HORTICULTURAL SOCIETY.

THE following extracts are taken from the report of the Council for the year 1898-99, to be presented to the Annual general meeting of Fellows, to be held at the Society's offices, 117, Victoria Street, Westminster, on Tuesday, February 14, 1899, at 3 P.M.

The year 1898-99 has been one of increased prosperity for the Society.

The Council have felt justified in spending a considerable amount on the Lindley Library, namely £170, to assist the Trustees in completing and publishing a catalogue of the library, and also in purchasing various books which the catalogue showed to be wanting.

The catalogue was published in December at a price of 2*s*. 6*d*. in the hope that many Fellows would purchase it, not only to inform themselves what books the library contains, but also because it forms in itself a sort of reference list to the bibliography of gardening. Some Fellows might also take note of books still wanting to the library, with a view to presenting them.

During the past year valuable books have been presented by the director of the Royal Gardens at Kew, Dr. Maxwell Masters, F.R.S., T. J. Bennett Poë, Esq., Miss Ormerod, Mrs. Holborn, Signor Alñio, and many others, to all of whom the best thanks of the Society are due. A full list will be published on April 1 in the Society's Journal, vol. xxii., part 4. Acting in conjunction with the Trustees, the Council have purchased for the library

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* *Recherches Anatomiques et Physiologiques sur le Tradescantia virginica.* . . . Par A. GRAVIS, Professeur à l'Université de Liège. (Bruxelles, HAYEZ, Rue de Louvain, 112.)

-*The Silva of North America*, Prof. Sargent; *The Flora of Northern America*, Britton & Brown; *Nature*, from its commencement, 56 vols.; *Flora f Tropical Africa; Flora Germanica*, Reichenach, 22 vols.; *Flora Pyrenaica*, Bubani; *Atlas es Plantes*, Bois; *The Water Garden*, Tricker; *Flora of Berkshire*, Druce; *Chemistry of the Garen*, Cousins; *Garden Making*, Prof. Bailey; *British Orchids*, Webster; and others.

Under the head of ordinary expenditure at Chiswick £1,850 has been spent on the general work and maintenance of the gardens. Amongst other work, House No. 9 and the potting-shed attached thereto have been painted and thoroughly repaired; Houses Nos. 3, 14, 16, and 21 have all been repaired and painted, as have also many of the frames. All this work has been done by the Society's own staff of men. The receipts by sale of surplus produce amount to £357, making the net ordinary cost of the gardens £1,493.

At Westminster, twenty-two Fruit and Floral Meetings have been held in the Drill Hall, James Street, Victoria Street; and seven Committee Meetings have been held at Chiswick, besides the larger Shows in the Temple Gardens on May 25, 26, and 27; and at the Crystal Palace on September 29, 30, and October 1. Lectures have been delivered at nineteen of the Meetings. The number of awards granted by the Council, on the recommendation of the various Committees, has been as follows:—At Provincial Shows, 17; Affiliated Societies, 70; Fruit Committee, 173; Floral Committee, 432; Orchid Committee, 193; Narcissus Committee, 21; Total, 906.

In addition to the above, 1 Silver-gilt Flora Medal has been awarded to Miss O. Harrisson for having passed 1st in the Society's examination, and 4 Hogg Memorial Medals have been awarded; 85 Bronze Banksian Medals have also been granted to Cottagers' Societies.

The Council are fully aware (as all Fellows visiting the Drill Hall shows must also be) how very meritorious the groups of flowers, fruits, and vegetables, &c., are, and how thoroughly, as a rule, they deserve the medals recommended by the committees. The Council entirely recognise the difficulty of the work of the committees in decreasing the number of medals they recommend. At the same time they feel it their duty to urge upon all the committees, and upon the individual members thereof, the necessity of gradually but continually raising the standard of excellence which they set before themselves in recommending awards.

Another point which the Council desire to suggest to the committees, is whether groups exhibited by the horticultural trade, and groups exhibited from amateurs' gardens, should be judged by exactly the same standard of excellence? Whether (except in cases of open competition for prizes), some slight favour should not be shown to encourage the latter?

During the past year the Society has been presented with the dies of a very fine medal, which has been struck and subscribed for by numerous friends, in memory of the late Dr. Robert Hogg. The Council have decided to restrict the use of this medal to the Fruit and Vegetable Committee, with which committee Dr. Hogg was so intimately and specially connected from its very foundation in 1858.

On Tuesday, July 5, the Council invited all the members of the several committees to lunch with them at Chiswick, and to examine the Gardens. An account of the proceedings will be found in the *Journal*, vol. xxii., p. 257.

An International Conference on Hybridisation has been arranged for July 11 and 12, 1899, to commence with a luncheon at Chiswick, to which all the committees of the Society will be invited, and to close with a banquet in the Whitehall Rooms, Hôtel Métropole, in honour of the distinguished foreign guests who are expected to attend the Conference. Full particulars concerning the Conference will be found in the Society's Book of Arrangements for the year 1899. Any Fellows desiring to be present at the banquet, and wishing for tickets for ladies or gentlemen, should communicate with the Secretary before July 1; the price of the tickets will be 21*s*.

The Council desire to draw the attention of all Fellows of the Society to the more extended use which the Scientific Committee might be to them if they availed themselves more freely of their privileges in submitting instances of diseases of, or injuries to plants, caused by insects or otherwise. The Scientific Committee is composed of gentlemen qualified to give the best advice on all such subjects, either in respect to the prevention or cure of disease. The committee is also glad to receive specimens of any subjects of horticultural or botanical interest.

That Fellows, whether near or at a distance, may derive as much benefit as possible from their connection with the Society, the Council last year appointed Dr. J. Augustus Voelcker, M.A., consulting chemist to the Society. They have renewed their arrangement with him whereby all Fellows who are amateurs or *boná-fide* gardeners, may obtain, at very small cost, analyses of manures, soils, &c., or advice as to what description of chemical manure will be most suitable and profitable for application to any particular soil. The Council wish again to draw particular attention to the following points, viz.:—

(i.) That Fellows desiring an analysis must follow explicitly and exactly the directions laid down in the book of arrangements, 1899; and

(ii.) That Fellows who are in any way commercially interested in any artificial manure trade or horticultural business cannot claim Dr. Voelcker's assistance as Fellows, but if they wish to consult him, must do so in the ordinary way of business.

The Society's Great Show held in May (by the continued kindness of the Treasurer and Benchers) in the Inner Temple Gardens, was as successful as ever, and it is a matter of satisfaction to the Council to find that this meeting is now universally acknowledged to be the leading horticultural exhibition of this country. The best thanks of the Society are due to all who kindly brought their plants for exhibition, or otherwise contributed to the success of this show.

The Exhibition of British Grown Fruit held by the Society at the Crystal Palace on Sept. 29, 30, and Oct. 1, was, considering the very unfavourable season, most satisfactory. Full particulars will be found in vol. xxii., Part 4, of the *Journal*, which will be issued in the course of a few weeks.

As an object-lesson in British fruit cultivation, this annual show stands unrivalled, and is of national importance. The Council invite Fellows and their friends to support it, for it cannot be too widely known that the continuance of the show is absolutely dependent on at least £100 being raised by subscription each year towards the prize fund. The show involves the society in a very large expenditure without the possibility of any return.

A deputation was sent by the council, at the invitation of the local authorities, to attend the great summer show of the Northumberland, Durham, and Newcastle-on-Tyne Botanical and Horticultural Society in July. Full particulars of this visit will be found in the society's *Journal*, vol. xxii., p. cxiii. The council desire to record the very great pleasure which this visit gave them, and their appreciation of the great courtesy and hospitality with which they were received.

An invitation has been received and accepted for sending a small deputation to visit a show of Daffodils and other early spring-flowers and produce, to be held at Truro on March 21 and 22, 1899.

The *Journal* of the Society has been continued, so as to enable Fellows at a distance to enter more fully into and reap the benefits of the study and work of those actively engaged at head-quarters. Vol. xxi., part 3, and parts 1, 2, and 3 of vol xxii., were issued during the year, and vol. xxii., part 4, will be ready on April 1.

It is gratifying to record that the enquiry for the Society's Leaflet on Fruits for Small Gardens, Cottagers, and Farmers continues. An entirely new and enlarged edition has been published, and may be obtained at the office at cost price.

The first edition of the Book of Rules for Judging, and Hints to Schedule Makers, which the Society drew up in 1896 has been exhausted. They have therefore been revised and reprinted, and an Appendix on point-judging and point-value has been issued, price 1*s*. 6*d*.

An examination in the Principles and Practice of Horticulture was held on April 5, concurrently in different parts of the United Kingdom, a centre being established wherever a magistrate, clergyman, schoolmaster, or other responsible person accustomed to examinations would consent to superintend one on the society's behalf, and in accordance with the rules laid down for its conduct. No limit as to the age, position, or previous training of the candidates was imposed. 190 candidates presented themselves for examination. The names and addresses of those who succeeded in satisfying the examiners, together with the number of marks assigned to each, will be found in the society's *Journal*, vol. xxii., p. 94.

It is proposed to hold a similar examination in 1899, on Tuesday, April 11. Candidates wishing to sit for the examination should make application during February to the secretary, Royal Horticultural Society's office, 117, Victoria Street, Westminster.

The thanks of the Society are due to all the members of the standing committees, viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees, for the kind and patient attention which they have severally given to their departments.

The thanks of the Society are also due to all those who, either at home or abroad, have so kindly presented plants or seeds to the Gardens. A list of the donors has been prepared, and will be found in the Society's *Journal*, vol. xxi., part 4, 1899, which will be issued on April 1.

The Council wish to express, in their own name and in that of the Fellows of the Society, their great indebtedness to all who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of the fortnightly meetings in the Drill Hall. They are glad to find by the increased and increasing number of visitors that the Society's fortnightly meetings are becoming better appreciated by the Fellows and public in general.

A desire having been expressed that the so-called fortnightly meetings should be actually fortnightly throughout the whole year, it will be found by referring to the Book of Arrangements, 1899, that the Council have acceded to this request, as far as it was possible to do so, having regard to such obstacles to absolute regularity as the Temple and Crystal Palace Shows, and the occurrence of Bank Holidays.

The Council have the sad duty of recording the death of forty-seven Fellows during the year, and among them they regret to find the names of Baron Ferdinand de Rothschild, M.P.; the Lord Newton, Mr. Christopher Sykes, the Earl of Sefton, the Earl of Lathom, Lady Cromer, Lady Repton, Sir Richard Quain, Sir Stuart Knill, Bart.; Sir James Bain, Hon. E. S. Parker Jervis, Professor Dr. Allman, Mr. Latimer Clarke, M. C. Bernardin, Dr. Johan Langé, Rev. D. A. Beaufort, Dr. l'Anson, Mr. H. M. Matheson, Mr. G. T. Clarke, Mr. Edmund Tonks, Mr. Chas. Sharpe, Mr. T. B. Potter, and others.

The following figures will show the Society's progress in regard to numerical strength during the past year:—Fellows elected, 619; deduct by resignations and deaths, 119; numerical increase, 500.

The Council recommend that (with the exception of the Secretary) the salaries of the principal officers of the Society—the superintendent, the cashier, and the assistant-superintendent, should continue as heretofore. The Secretary having now completed ten years of service to the Society, the Council recommend that an addition of £50 a year be made to his salary.

The balance-sheet shows a credit balance of £1293 7s. 4d.

FLORISTS' FLOWERS.

AURICULAS.

The months of January and February do not bring the florist much work among Auriculas, and beyond keeping them healthy by the admission of air when there is no frost, little can be done. Continue to afford water very cautiously; only enough to keep the soil from getting dust-dry being needed for the present. The plants will be getting into growth slowly as the season advances, and more moisture at the roots may then be afforded. In applying water, avoid wetting the leaves and spilling water amongst the pots needlessly. Carefully remove all dead or decaying leaves from the plants, and moss from the surface of the soil. On the slightest sign of aphides, fumigate the frame, &c., with tobacco; or, when a few plants only are infested, brush off the insects with a camel-hair brush. The weather in the south has become more seasonable than of late, and means should be taken to ward off frost by covering the glass in case of sudden frost, covering being, for Auriculas, preferable to artificial heat.

The plants should be top-dressed about the middle of February, if the weather should be mild, therefore it will be well to have the compost in readiness. The potting-compost should consist of turfy loam two parts, decayed dry cow-dung half a part each, and a small quantity of leaf-mould. The compost should be placed under cover where it will not freeze, so as to mellow by the time it is wanted for the repotting.

Hollyhocks.

Seeds from a trusty source may be sown forthwith in pots filled with light loamy soil, and placed in a house with a warmth of 65° or 70°. From out of this sowing the strongest plants will bloom the first year, and the remainder the following year. If the seeds are of the best kinds, both single and double flowers will appear. In my next note, I will touch upon the treatment required after germination. *E. Molyneux.*

MR. A. McKENZIE, THE LATE TREASURER, SCOTTISH HORTICULTURAL ASSOCIATION.

Many readers of the *Gardeners' Chronicle* will be glad to learn that the retirement of Mr. McKenzie from the post of treasurer was not caused by failure of bodily strength or lack of interest in the affairs of the association, but from a desire to see a younger man, with heart and soul in the carrying on the good work of the association. A few words concerning Mr. McKenzie's career will be of interest to many. His gardening training began in Belladrum Gardens, Inverness-shire, in 1848. After having undergone the usual experience of young gardeners in Scotland in quest of further knowledge, he settled for some few years on the shores of the Clyde, where he was engaged in gardening, farming, and almost every other aspect of rural life. Here it was that he laid in a stock of knowledge which has stood him in good stead. In 1868 Mr. McKenzie entered the Leith Walk Nurseries, waiting, as many others had done before him, for something suitable to turn up. At that time, the late Baillie Methven acquired the Warriston Nursery, and young McKenzie was sent to look after it, and there really began his life's work. A few weeks ago he was the recipient of a handsome silver tea-service from the Messrs. Methven, as a memento of his thirty years of faithful service and friendship. Although business claimed much of his time, he was at all times one of the staunchest supporters of the Scottish Horticultural Association, to which he devoted much of his leisure. I would refer to the early days of the association. In 1877, a few kindred spirits led by Mr. Robertson Munro, then of the Abercorn Nursery, conceived the idea of holding monthly meetings, at which subjects of gardening interest were to be discussed, and at which plants, fruits, and vegetables of merit exhibited and recognised by awarding the best of them Cultural Certificates. The Association prospered fairly well for about nine years, when some of the more ardent members advocated the holding of a Chrysanthemum exhibition. Here I would like to mention that Mr. Carruthers, of Hillwood, and Mr. McMillan, of Trinity, in particular took up this matter so strongly, with the result that in 1886 the first exhibition was held in a small hall in George Street, Edinburgh. Since that year an annual show has been held, and on the suggestion of the late Mr. Wm. Thomson, of Clovenfords, a centenary exhibition was held in 1889. The magnificent success which attended this exhibition gave an impetus to practical horticulture in Scotland, especially to Chrysanthemum culture, and that of other winter-flowering plants. It demonstrated the practicability of holding a large and interesting exhibition in the dead of winter, and its shows have established the Chrysanthemum in popular favour.

MR. A. McKENZIE.

The Association has distributed the sum of £3550 in promoting the interests of gardeners and gardening during the last ten years. In providing high-class music—for this is as necessary for the success of the shows as the plants and flowers themselves—it has spent £3775. On printing, advertising, and other necessary outlays, such as making the Waverley Market comfortable and attractive, a large sum has been expended. The Association has also devoted to charitable institutions, chiefly those connected with gardening, £550; whilst it has reserved against unforeseen contingencies the modest sum of £790. Many will ask what influences contributed to this large measure of success. I once asked Mr. McKenzie the same question, and he promptly replied—"In the first place, to that love of the beautiful in Art or Nature which prevails among all ranks of the inhabitants of Edinburgh, and it is this alone that draws the thousands to admire the choice productions of the gardeners' art, and to listen to good music. The second cause, I think, will be admitted to be the facilities afforded by the Waverley Market as a site for an exhibition." And personally, I must assign much to the enterprise and liberality of the Council in offering inducements to all classes of grower and to the care, ability, and promptitude, whic Mr. McKenzie has bestowed on the finances of th Association. *J. W. McHattie, Strathfieldsaye.*

THE HISTORY OF GARDENS.

Mr. Albert Forbes Sieveking, F.S.A., delivere a lecture on "Gardens; their History and Liter ture," illustrated by limelight pictures, at th London Institution, on Thursday, January 1 After defining a garden etymologically as a "yard but "touched with emotion of poetry," he diffe entiated the formal or architect's garden (a sort o open-air extension of the house, with its clipped hedges and trees of topiarian art) from the natural, irregular, Chinese, English, or landscape garde and pointed out how Milton had "trimmed" a "hedged" his Garden of Eden between the schools. He then showed the design of an ancie Egyptian garden from a tomb in Thebes. The proble of the "hanging-gardens" of Babylon he declared t be still in "suspension;" and passing by the ancien Persian gardens he showed three views of existin ones, including the Shah's gardens at Teheran. Th gardens of Homer and of the philosopher Epicurus brought him to the "built" garden magnificence of the Roman Empire, to illustrate which, he showed Lucullus's villa at Baiæ, a trellised garde from a wall-painting at Herculaneum, and the restoration of Pliny the younger's Tusculan villa from his own detailed description, and pointed out how this contained the essence of the formal style and the germ of the natural or landscape school. Of monastic gardens he showed a plan of the abbey of Saint Gall by a monk in the IXth Century, and pictures of the monasteries of Saint Germain des Prés and of Ashridge, in Herts. Mediæval gardens were represented from the "Roman de la Rose" and the "Garden of Love," the earliest known engraving—Blois and Gaillon and St. Germain en Laye, from Ducerceau's Architecture—and De Vries's "Hortorum Formæ" to illustrate Palissy the Potter's "Jardin Délectable." Of early Tudor gardens he showed the still existing "Pond Garden" at Hampton Court; and then, turning to Spain, he showed pictures of the Alcazar, the Genealife, and Aranjuez, where Velasquez painted. Italy furnished the terraced gardens of the Villa d'Este and Albani after Piranesi's engravings, an Mr. George Elgood's beautiful pictures of th Villas Borghese Aldo-brandini, Palombo, [illegible] Lante, and the Boboli Gardens. Of Elizabethan gardens he showed De Caux's Fa of Wilton (with Taylor, the Water-poet's euphuistic description), a plate from Crispin de Pass's "Hortus Floridus" and Sir Philip Sidney reclining in the "pleached" garden at Penshurst. Of herbals, the title-page of Gerard's first edition was shown with brief allusion to the physic gardens of Europe. De Serre's "Théâtre d'Agriculture," and Mollet's "Parterres de Broderie" led the way to Le Notre's masterpiece at Versailles illustrated by Perelle's engravings. John Ev was not forgotten, and the Dutch style was illustrated by the garden of the Count de Nassau Kip's Hampton Court, with its grand semi-circ parterre of 9½ acres. Stowe was given as left Bridgeman and sung by Pope, one of the pion of modern gardening. The old gardens of Ox and Cambridge, Badminton, Chatsworth, Chevening paved the way to the English landscape garden, derived from the Chi Emperor's "Garden of Gardens," from which "willow pattern" plate became the type European garden, abhorring straight lines, substituting park for garden scenery. Hor Walpole, Kent, "Capability" Brown, and Hu phrey Repton were all passed in review; Esher "where Kent and Nature vied for Pelham's love" being chosen as the typical landscape garden after Whateley's "Observations on Modern Gardening." The symbolical character of Japanese gardens was pointed out in two examples. Shenstone was cited as the exponent of what Mr. Sieveking called th

"Jardin Larmoyant," or Emotional and Sentimental garden, at the "Leasowes;" and Walter Scott was praised for holding the balance between the rival schools, while Gilpin, Uvedale Price, and Payne Knight re-acted against the extreme theories of the naturalists.

In addition to the sources named, Mr. Sieveking was indebted for some of his illustrations to Miss Amherst's (Mrs. Evelyn Cecil's) *History of English Gardening;* for the views of Persian Gardens, to Miss Ella Sykes (authoress of *Through Persia on a Side-Saddle*); and for some other scarce prints to Professor Brinckmann, Director of the Hamburg Museum of Arts and Crafts, who most kindly placed at Mr. Sieveking's disposal a selection from the unique historical collection of engravings of gardens, formed by the Museum.

A tribute was paid to Mr. William Robinson's natural and wild gardening, and Mr. Blomfield's and Mr. Inigo Thomas's advocacy of the formal garden, and Mr. George Elgood's beautiful pictures illustrated English old-world gardens, and Drummond Castle, Balfour, and Stobhall gardens (by Mr. Fred Walker, A.R.A.) represented Scotland. The lecturer took no side in the controversy between the natural and formal styles, preferring a judicious eclecticism, with the formal garden near the house, and passing, by harmonious transitions, to the park or landscape garden—from perfect art to wildest nature. He declared his belief that the garden-lover could not go far wrong if he would let nature be his religion, beauty and art his creed, and took for his oracle Pope's verse: "Consult the genius of the place in all." We understand that an improved and enlarged illustrated edition of Mr. Sieveking's *Praise of Gardens* (which first appeared in 1885, and has long been out of print) will be published by Messrs. J. M. Dent & Co. in the spring.

PRESENTATION TO MR. ALEXANDER YOUNG, ANNESLEY PARK, NOTTS.

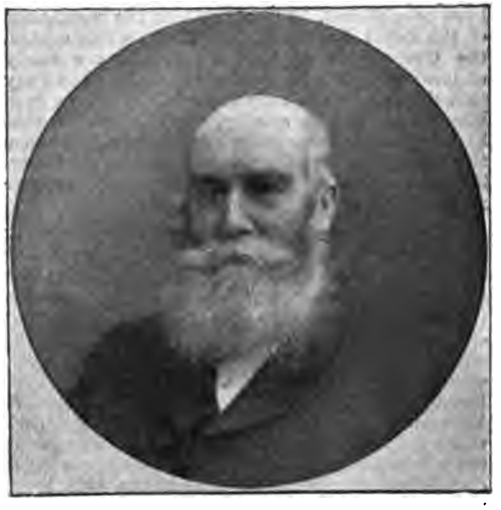
On the afternoon of Wednesday, January 11, an interesting ceremony took place at Annesley Hall, when Mr. A. Young was made the recipient of a large portrait of himself, from which our illustration is copied, and a purse containing £60, subscribed for by the members of the Chaworth-Musters family, the tenantry on the Chaworth-Musters estates of Tithby, Edwalton, and Annesley, together with other friends at Nottingham and Annesley.

Four years ago Mr. Young completed his fortieth year of service at Annesley, and in memory of this event he received from his employer, J. P. Chaworth-Musters, Esq., a handsome silver tea-service. Through the liberality and consideration of his employer he has now been able to retire from active duties, and Mr. George Chaworth-Musters has taken this opportunity for organising and carrying out a scheme for showing in a tangible way the respect in which Mr. Young is held by all classes.

Mr. Young was born near Coldstream, in Berwickshire, in 1829, and after the usual experiences as journeyman, was sent by Mr. Macnab, of the Botanic Gardens, Edinburgh, to Minto House, near Hawick, under Mr. Williamson, then gardener to the Earl of Minto. After a short residence there, acting on Mr. Macnab's advice, he proceeded to Tynninghame House, the seat of the Earl of Haddington, as foreman under the late Mr. Lees. He occupied this post for two and a half years, when he was appointed head gardener to the late John Chaworth-Musters, Esq., and entered on his duties at Annesley Park Sept. 16, 1855. Under his superintendence the gardens at Annersley were greatly enlarged and beautified, and in 1868 he was appointed estate steward. This post he held until August, 1898, when he was succeeded by his son-in-law, Mr. W. M. Geddes, who was for some years head gardener to the late Earl of Macclesfield, Shirburn Castle, Oxon; and for fourteen years estate steward to Lady Byron, Thrumpton, Derby.

The subscribers to Mr. Young's testimonial were entertained at the Hall by Mrs. J. P. Chaworth-Musters, and the presentation was made by Mrs. Chaworth-Musters, of Wiverton, who spoke of the high esteem in which Mr. Young was held by all classes, his loyalty to his employers, his high reputation, and the good influence exerted by him upon all with whom he came in contact; and said, that the hearty response given to Mr. George Chaworth-Muster's proposal had been most gratifying.

In replying, Mr. Young said it had always been a great pleasure to serve the family, and he thanked most heartily his employers, the tenantry, and his fellow-servants who had united to do him such a signal honour. After drinking the health of Mr. Young, several short speeches were made by various tenants on the estates, and Mr. Chaworth-Musters then spoke of his personal indebtedness to Mr. Young, who had always had the fullest confidence of his father and himself, and expressed the wish that he might live many years to enjoy his well-earned rest.



MR. ALEXANDER YOUNG.

HOME CORRESPONDENCE.

CHRYSANTHEMUMS FOR BUSH CULTURE.—There are comparatively few of the Japanese varieties that are unsatisfactory when treated as "bush" plants, providing that sufficient thinning be practised. If exhibition varieties are preferred for the purpose, the cultivator should aim to obtain plants with from six to twelve shoots, and thin the flowering-buds to one upon each shoot. The majority of novelties exhibit a better habit of growth for the purpose, being sturdier and shorter, than many of the older ones. It would be safe to try any Japanese variety as a bush-plant of the above description, if its height when grown for the production of exhibition flowers does not exceed 5 feet. Some of them will give better results than others, of course, according to their tendency to flower freely, but there need be few failures. But if bush-plants are required to produce "sprays" of blooms, then the field of choice is a less wide one, and those known as "decorative" or "market" sorts will give the greatest amount of satisfaction. The question, however, suggests itself, whether it is worth while to choose large-flowering exhibition varieties for a system of culture in which no thinning is done. The result can hardly be other than flowers totally devoid of character. *R. H. P.*

EUCALYPTUS IN IRELAND.—It may interest some of your readers to know that some varieties of Eucalyptus are hardy in Ireland. In the year 1876 the Earl of Annesley planted in his grounds at Castlewellan, co. Down, a collection of about two dozen varieties of Eucalyptus, which did very well for a few years till the first severe frost set in, and killed all except three varieties, namely, E. coccifera, E. cornigera, and E. urnigera. These varieties have not suffered from frost since they were planted twenty-three years ago, so I think they may be looked upon as being hardy. Some of them are now more than 50 feet in height, and they flower and seed regularly. A good many other varieties of Eucalyptus have been planted at Castlewellan since 1876, and the following species have stood the severe winters of the past ten years: E. cordata, E. gomphocephala, E. piperita, E. resinifera, E. rostrata, and E. saligna. *T. Ryan, The Gardens, Castlewellan.*

—— On p. 43, Mr. A. R. Pearce says he has only known E. Globulus to flower in the open in maritime counties. It may interest your numerous readers to know we have two growing in different parts of the grounds here. They were planted out at the end of May, 1895, and are now over 35 feet high, and are freely covered with curious shaped knobs on last season's growths (shoot enclosed), which I presume are flower-buds [seed-vessels. ED.]. The last three winters have been comparatively mild, but we have bound the stems for about 10 feet up each winter with hay-bands. *F. Knights, Bitteswell Hall Gardens, Lutterworth, Leicestershire.* [The specimen sent is not E. Globulus; we will endeavour to identify it. Our correspondent must have overlooked the flowers produced last summer. ED.]

MUSHROOMS SPOILED BY OTHER FUNGI.—Herewith I am sending three Mushrooms attacked apparently by some other fungus. I have had several patches, particularly in one bed, but cannot assign a cause. The dung was, as far as I know, in good condition, and the soil used for casing was virgin soil. In all other respects the beds have done well, the crop being quite up to the average. The beds from which these Mushrooms were taken are situated in a vinery lying idle. But I have had the same thing on the outside beds. It appears to spread very rapidly, attacking Mushrooms in all stages of growth, and spreads also after they have been cut and cleaned for market. If you can send me any advice as to how to cure and prevent this disease, I shall feel extremely indebted to you. *F. Freeman Page, January* 7. [To this communication, which we sent, together with the Mushrooms, to Dr. M. C. Cooke, we received the following reply. ED.]:—

"Mushrooms received from Mr. Page are diseased in a manner familiar to us for many years, but which to a considerable extent remains a mystery. The affection presents itself on the under surface at first, and the gills are covered and distorted by the development of a white mould, which up to the present has not produced spores or conidia, although the inference is that the mould is a conidial stage of a Sphæriaceous fungus belonging to the genus Hypomyces. All the species of this genus hitherto known are produced as parasites on other fungi, such as Agarics, Russulæ, Lactarii, Chantarelles, &c., growing specially on the gills, which are thereby distorted, and ultimately producing the capsules or perithecia of imbedded Sphœriæ, resembling Nectria, enclosing sporidia enclosed in asci. In the present instance the perfect fruit is unknown, but the mouldy or conidial stage is precisely analogous to that in other species. The development of this parasite is destructive to the Mushroom, not only spoiling its appearance but so altering its character as to prevent its use as food. The predisposing cause of this phenomenon is yet unknown, the spawn being uniformly good, the culture normal, and the conditions apparently healthy; and yet, when the parasite appears it takes possession of the entire bed, and there is no alternative but to break it up and effectually destroy the entire bed and its produce, so as to eradicate all germs of the disease. No efforts have proved successful in checking the disease when once it makes its appearance, and as the cause remains a mystery prevention is equally impossible. We are inclined to think that some peculiar conditions of culture must be the basis of the infection, such as too close and humid an atmosphere, or some conditions which serve to lessen the vitality of the Mushrooms and encourage parasitism. From the analogy of other species, growing spontaneously, and developing moulds, we have observed that infected plants grow in unusually damp places, where the water is stagnant, and that the mould makes its appearance upon sickly and unhealthy-looking Agarics, but never, as far as we have seen, upon strong and vigorous hosts. If these observations are correct, then the only remedy to be found lies in a closer attention to the conditions of culture rather than to any deficiency in the soil, or deterioration of the spawn, which may originally have been of the best quality. *M. C. C.*"

TOMATOS TRAINED SPIRALLY.—In reply to "A. D.'s" remarks in the *Gardeners' Chronicle*, p. 13, vol. xxv., I suppose he would observe that the word fine was a printer's error, and should have read "those planted in the open received support from five stakes;" and as "A. D." justly remarks, three or more must have been employed to form the needed columnar support. When "A. D." visited the garden here three years ago, I remember his getting quite enthusiastic regarding our method of Tomato and Melon cultivation, which was thoroughly investigated, and which makes me, as it should also all other readers of the *Gardeners' Chronicle*, appreciate the facts supplied by him from time to time. I may inform him that the crop gathered from the plants trained spirally on the open border far surpassed those grown on the walls three years ago, so far as I can recollect; but it must be remembered that the past summer was an exceptionally good one for the Tomato out-of-doors, provided a good supply of water was afforded the plants. I hope as time goes on to see my method generally adopted; and I am certain that if cottagers and allotment-holders were to adopt it, they would be amply repaid for their trouble and labour, as they could gather from their Tomato-plants fruit for at least three months if the season were at all favourable. *George MacKinlay.*

JADOO FIBRE.—I was much interested in the note on this subject at p. 42, sent from France—rather far from home for such intelligence, because it seems to present a somewhat singular phenomenon. For here we find a Vine, either originally absolutely rootless, and later forming roots only on the side on which Jadoo fibre was placed; or if having normal roots, then must those on the undressed side have turned round to the dressed side in search of the feast the Jadoo was supposed to furnish. If that does not indicate on the part of Vine-roots a very high order of intelligence, what can do so? Still, we might have expected, seeing how long the Jadoo fibre has been with us, to have heard of numerous similar cases at home, where Vine culture is pursued with such remarkable persistence and ability. But 999 out of every 1000 of our Grape growers stupidly continue to prefer turfy or fibrous loam to Jadoo fibre for Grape production. Possibly, after reading the note referred to, we shall find them utilising Jadoo universally. If they have it not, and lack fibre, they will find an admirable substitute in peat-moss soaked with sewage, and then turned once or twice, to partially heat and sweeten it before using it. But as a test of the relative merits of Jadoo fibre and pure turfy loam in the culture of Vines, I should like to see a few young ones put into 12-inch pots with Jadoo only, and others with turfy loam only and devoid of any other compound, and then grown on as ordinary fruiting canes and fruited the following year. That would be a description of test of the merits of these two soil compounds that would admit of neither amusement nor of scepticism. *A. D.*

PEA GRADUS.—As a first-class early wrinkled Pea this is one of the best in regard to quality, cropping, and its usefulness for exhibition. The pods are very large and well filled, and its height is 3½ feet. I grew a quantity last season, together with other sorts, on a heavy clay soil, and I consider it worthy of recommendation. *A. R. Pearce, Braymead Gardens, near Maidenhead.*

BEGONIA GLOIRE DE LORRAINE.—My friend, "A. D.," at p. 44, says—"This plant is, I understand, so far asexual (*sic*), that it produces only male or barren (*sic*) flowers." Well, "A. D.'s "asexual," was, I suppose, a slip of the pen for uni-sexual; but it would be a poor look-out for our friends the hybridists and cross-breeders, if even male or polleniferous flowers were "barren!" So far as Begonia Gloire de Lorraine is concerned, there are a good many exceptions to its bearing male flowers only. That its male flowers are numerically in excess of the female ones I willingly admit, but they can be found in most gardens wherein it is grown, when really sought for. When I saw the single female flowers on the plant at Chiswick on December 30 of last year, I also thought it rather uncommon, having never seen one before. On going to see my friend, Mr. Hudson, at Gunnersbury, I said something about it to him, or one of his men, and I believe female flowers were found there. On my return home I looked at my own plants, and found a female flower on a plant in a basket, though none on plants in pots further from the glass; and all other gardeners who grow this beautiful winter-blooming Begonia to whom I have spoken on the matter, have found one or more female flowers, or seed capsules, when they looked carefully for them. I should like to hear what Mr. H. B. May has to say on this point, and whether female flowers have been noticed on the great batches of this plant, which he cultivates so well? One practical advantage possessed by this plant is, that it is a constant bloomer, flowering practically all the year round, and this persistence may be, and probably is, due in some measure to the comparative paucity of seed-bearing flowers, which leaves more energy available for the production of male flowers. Can anyone kindly tell us of the parentage of this exquisite Begonia? Is it a hybrid between B. socotrana and B. Dregeana, or some other species? Whatever its parentage may be, it is undoubtedly one of the best winter-flowering plants of recent introduction to our gardens. The whole genus Begonia is a very interesting and variable one in habit and foliage, as well as in flowers; and remembering the all-the-year-round types of beauty so well shown in the old Begonia-house at Kew some twenty-five or thirty years ago, I think if I were rich enough to devote houses to any special order of plants, I should prefer Begonias to Orchids, even for their ever-varying phases of beauty and charm. I believe the day of the Begonias has yet to come. *F. W. Burbidge.*

GRAPE JUDGING.—"Ayrshire Lad" seems to find it difficult to understand what is referred to when I recently wrote, "The judges can with fixed maximums vary the points." If I had said that the judges could vary the maximums, it would have been absurd. But seeing that the regulations of the Royal Horticultural Society, which control the Grape judging at Shrewsbury, are easily understood, and also fixed maximums, when I say that the judges can vary the points given to each bunch according to quality, what I convey is that knowing they cannot in any case give points above the maximum specified, they can give fewer, if the bunches shown are of medium or inferior merit. I think that is clear enough.

—— Permit me to point out to Mr. Kirk, of Alloa, who seems alarmed lest in the judging of the decorated great Grape class at Shrewsbury, in August next, the decorative effort may, in the judges' estimation, outweigh the cultural excellence of the Grape, that if he will read the conditions of the class as found in the show schedule, he will find that whilst the twelve bunches may obtain a possible maximum of 110 points, those possible for decoration are limited to six points only, a very infinitessimal number of the whole, and showing that the effect of the introduced decorative material is rather to help break up the monotony seen in long lines of Grapes on boards, and not to lend to the fruit any extraneous and unmerited points. *A. D.*

WINTER ACONITES.—I note by the correspondence in the *Gardeners' Chronicle*, that some surprise has been expressed at the lateness of the flowering of the Winter Aconite this year. A row of this plant is growing in these gardens on a Rhododendron bed facing due south, and open flowers were observed on January 15; they were planted five years, and this will be the fifth season they have flowered. They have not been disturbed since they were planted. *W. G. Bushell, Rownham House Gardens, Southampton.*

—— In this garden the Winter Aconites opened their first flowers on the 18th inst. The plants are growing on a south border. In places about the gardens where Aconites usually appear, I cannot find a single flower-bud. I am unable to say whether Aconites are this year unusually late, as usually about this date the ground is more or less covered with snow; but with its disappearance towards the end of the month, and aided by a few sunny days, Aconites have appeared in abundance. Snowdrops are freely coming into flower. *H. Fisher, Flixton Hall Gardens, Bungay, January* 23.

EARLY FLOWERS.—In addition to the other interesting notes on Winter Aconites and other flowers which appeared in the *Gardeners' Chronicle* for last week, I send you a list of plants in flower at the present time at Woking:—Hepaticas, single and double-flowered; Iris stylosa and its white variety, Omphalodes verna and O. v. alba, Phlox verna, Galanthus Elwesii, Gentiana acaulis, a few solitary flowers; Primula acaulis, P. a. alba plena, P. a. lutea plena, P. a. Creusseri plena, and Tussilago fragrans. The last-named plant has been exceedingly fine this season, owing to the mildness of the weather, its fragrance being delightful. Saxifraga Burseriana, Anemone blanda, and Morisia hypogæa are in bud. Among shrubs, the following are noticeable:—Hamamelis (Wych-Hazel), Jasminum nudiflorum, and Garrya elliptica. The last-named is exceedingly profuse this season, its catkins being of great length; while on a wall I noticed Forsythia suspensa commencing to expand. *E. Scaplehorn, Woking.* [A correspondent from Inverness sends us Adonis autumnalis in bloom! Ed.]

SPIRÆA DISCOLOR (ARIÆFOLIA).—I endorse all that has been recently published in the *Gardeners' Chronicle* about this species. Mr. Divers' advice, printed in your last issue, to plant it in shady positions, is quite to the purpose. There are several planted here in the shade and exposed, but those in the shade are of a purer white, and keep fresh longer than the others. He tells us that the plant does well on cold clay soil at Belvoir, but in reality they do not seem to be particular as to soil. We are situated on limestone, and some of our plants are about 14 feet in height, and they bloom profusely every year. *D. Elkins, Trewsbury Gardens, Cirencester.*

CURIOSITIES OF ORCHID BREEDING.

(*Concluded from p.* 37.)

Fertility of Hybrids.—The question of the fertility of hybrids is a highly interesting one, and especially important to the student of evolution; and I venture to think that recent experiments in Orchid hybridisation have added considerably to our knowledge of the subject.

One of the principal objections to Darwin's theory of the origin of species was the supposed general sterility of hybrids.

Darwin fully appreciated this difficulty, and, after a careful and most elaborate survey of the whole question of hybridism, came to the following conclusions:—"First crosses between forms sufficiently distinct to be ranked as species, and their hybrids are very generally, but not universally sterile. . . . The sterility is of all degrees" (*Origin of Species*, 6th ed., p. 262). Again:—"The sterility of distinct species, when first united, and that of their hybrid offspring, graduates by an almost infinite number of steps from zero (when the ovule is never impregnated, and a seed capsule is never formed) up to complete fertility. . . . This high degree of fertility is, however, rare" (*Animals and Plants*, 2nd ed., vol. ii., p. 163). Some fifteen years later, Dr. Alfred Russel Wallace took up a somewhat similar but more definite position. He writes: "One of the greatest, perhaps we may say the greatest, of all the difficulties in the way of accepting the theory of natural selection as a complete explanation of the origin of species, has been the remarkable difference between varieties and species in respect of fertility when crossed. Generally speaking, it may be said that the varieties of any one species, however different they may be in external appearance, are perfectly fertile when crossed, and their mongrel offspring are equally fertile when bred among themselves; while distinct species, on the other hand, however closely they may resemble each other externally, are usually infertile when crossed, and their hybrid offspring absolutely sterile" (*Darwinism*, 1890, p. 152). Since that time, hundreds of hybrid Orchids have been raised in gardens. As we have already seen, there are now on record some 500 distinct primary hybrids raised from distinct species; also some 300 secondary and tertiary hybrids from distinct crosses, raised from parents themselves hybrids.

In the face of these facts, therefore, we can hardly maintain that "distinct species . . . are usually infertile when crossed," and still less can we assert that "their hybrid offspring are absolutely sterile." As it is with Orchids, so it is with other garden plants that have been hybridised, e.g., Roses, Rhododendrons, Dahlias, Chrysanthemums, Carnations, Begonias, Pansies, &c.; the wonderful forms seen in gardens at the present day are all hybrids of many generations, being the known product of more than one species, and these are all fertile in the production of seeds. Darwin seemed to attach much importance to the different degrees of fertility in hybrids, ranging from complete fertility down to absolute sterility. At present we have no means of ascertaining the relative fertility of hybrid Orchids with that of ordinary species, owing partly to the fact that very few crosses have been made in gardens between varieties of the same species, and partly to the fact that many thousands of seeds are contained in one capsule, being practically innumerable. But through the kindness of Mr. Reginald Young, of Liverpool—an enthusiastic connoisseur in Cypripediums—the writer has been able to work out certain statistics bearing on the question of the comparative fertility of hybrids (see *Journ. Roy. Hort. Soc.*, vol. xxi., April, 1898).

The voluminous records in Mr. Young's stud-book cover a period of about five years, and were specially selected by the writer on account of the reputation of the breeder as a careful observer and a precise recorder. Out of the 577 crosses made by Mr. Young, among thirty distinct species and fifty-three distinct hybrids of the new genus Paphiopedium, no less than 78·3 per cent. proved fertile, i.e., produced good seeds.

Of these, the crosses between distinct species only, 95·2 per cent. were fertile, while the crosses in which a hybrid was concerned in the parentage, 71·8 per cent. proved fertile.

This seems to show that crosses between distinct species are almost if not quite as fertile as crosses between varieties of the same species (taking the latter at complete fertility, i.e., 100 per cent.); while crosses with hybrids, though fertile to a high degree, are yet rather less fertile than crosses between species. A further analysis of the figures shows, that while hybrids crossed with pollen of pure species give 89·5 per cent. fertile, yet pure species crossed with pollen of hybrids give but 56·7 per cent. fertile. This points to the conclusion that the slight decline in the fertility of hybrids is due in a large measure to the loss of power in the pollen of hybrids.

Why the male element in hybrids should be so much less potent than the female element I cannot pretend to say.

Evolution of Species by Natural Hybridisation.

The experimental demonstration of natural hybrids shows clearly that intercrossing between different species is carried on in a state of Nature to a far greater extent than was formerly supposed; and the comparative fertility of these natural hybrids would be of vital importance to them in their struggle for life.

If, as seems highly probable from the above experiments with Orchids, it is the pollen only of hybrids that is impaired, and the capacity of the hybrid to bear seed crossed with the pollen of pure species remains practically unimpaired, it is quite clear that the natural hybrid has a part to play in the evolution of new species.

As we have already seen, hybridisation tends to increase variation, especially beyond the first generation; and, naturally, the more variable the offspring, the better fitted would they be to adapt themselves to changed conditions of life.

If the circumstances changed rapidly and considerably, the variable offspring of the hybrids would stand a better chance in the struggle for life than the more uniform offspring of the parent species, which were themselves specially adapted to the old conditions. In this way, as conditions changed, new species would be evolved more fitted to the new conditions of life than the old species, which they would gradually replace, and I venture to suggest that natural hybridisation is the most rapid of Nature's means towards that end. *C. C. Hurst, in "Nature."*

SOCIETIES.

LINNEAN.

December 15.—Mr. H. J. Elwes, F.R.S., F.L.S., gave an account of the Zoological and Botanical results of a recent journey to the Altai Mountains.

As regards the Zoology of the particular district explored by him, little was previously known; for with the exceptions of Major Cumberland, Mr. St. George Littledale, who accompanied Prince Demidoff last year, and Mr. Rew, who travelled very rapidly through the country *viâ* Kuznetsk and Kobdo to Irkutsk, no Englishman had in recent years visited the Altai, or written on the natural history of that region. He understood by the term "Altai," the western extension of the great mountain-range which is entirely cut off by the Desert of Mongolia and the Irtysch Valley, from the Mountains of Turkestan, the Himalayas, and all the great mountain-ranges of Central Asia, though it extends under the name of the Sayansk Mountains as far east as Lake Baikal.

One of his chief objects was to visit the head-waters of the Yenisei, almost unknown even to the Russians; a great valley 300 miles wide by 200 miles long, scarcely inhabited, and almost unknown. His journey commenced practically at Moscow, in the middle of May, and extended from the Ural Mountains through Omsk to the River Obi, across a vast and unvarying steppe to Büsk, where his natural-history collecting began. After describing the general appearance of the country and the vegetation, Mr. Elwes stated that he had brought home about 180 species of butterflies out of a possible 200 (of which 141 had been collected by himself), and 80 species of moths.

As regards plants, finding the flora pretty well known through the labours of Ledebour, Bunge and Tchihatcheff, he thought it preferable to collect the plants of a small typical valley rather than attempt a general collection made at random. Unfortunately, owing to an accident when crossing a river, the greater part of that collection was lost. He was much struck with the extraordinary beauty and abundance of the alpine plants in certain marshy valleys from 6000 to 7500 feet in altitude. There was a remarkable absence of peat-plants, and hardly any Ferns were seen in the Tchuja Valley between the Katuna River and the upper Tchuja Steppe, a plateau about 6000 ft. above the sea, south of which the greater part of the observations were made. From this plateau he journeyed to the high mountains of the south in quest of the famous wild sheep, Ovis ammon of Pallas, of which he secured three specimens, which were now exhibited, one having a measurement of 62 inches round the curve of the horn, which is about the largest on record for this species. He mentioned the scarcety of game-birds in the Altai, though Tetraogallus altaicus was often seen at an elevation of 8000 to 9000 feet, accompanying the Ibex (Capra sibirica) as in the Himalaya and Caucasus. He mentioned the breeding on the mountain lakes of Oidemia Stejnegeri, a North Pacific species allied to our velvet scoter.

The Great Stag of the Altai, of which several heads were shown, was evidently an Asiatic form of the Wapiti, the antlers having a remarkably long fourth tine, and the peculiar back tine at the top, characteristic of the American animal, and not observable in the European red deer. These were compared with four adult pairs of horns of the Mantchurian Cervus Lühdorfi, which had been kindly sent to him by the Duke of Bedford. Though much smaller than either the American or Altai stag, these horns showed the same typical Wapiti character, and it appeared as though the races inhabiting the N.W. coast of America and the N.E. coast-region of Asia more closely resembled each other than they did the other races of their own continent.

He exhibited a series of heads of the Siberian roedeer, which were compared with typical heads of the European roedeer, from which it was considered specifically distinct.

DEVON AND EXETER GARDENERS.

January 18.—At the meeting held on the above date at Exeter, Mr. R. W. Hodder, gr. to Mrs. Trevor Barclay, Ponsonby, Torquay, gave a paper on "The Fungus Pests of Our Gardens."

Mildew was described as subsisting on the leaf-tissues of its host, as when removed by any of the common remedies it did not reappear from the same mycelium, though a fresh attack might come from the original source. In this way mildew was not such a dreaded pest as other fungus diseases. The damping-off of seedlings (pseudo-commis) [?] was shown to be the result of an attack of fungus, and it was advised that not only should the plants so attacked be at once removed, but that the soil under and around them should also be taken away, to prevent a spread of the disease. If the plants were under glass, a drier atmosphere should be given them. For mildew on Onions, a good dusting with soot early in the morning was recommended, when the foliage was damp; or, in very dry weather, a gentle spraying with water, and then a dusting with soot. Another remedy was to dilute sulphide of potassium into a paste by adding water, and applying it to plants so attacked.

As a remedy for the Carnation-disease, the following recipe was given:—Dissolve 3 lb. sulphate of copper in 1½ gal. of boiling water, stirring well until the copper is dissolved. Then, with this liquid slake half a bushel of lime, or as much lime as is necessary to bring it to a fine powder. Dust the plants with this powder, and, forty-eight hours afterwards, syringe them with clean water. Repeat the application to any plants still showing "spot." Referring to the Potato-disease, the burning of the haulm after the lifting of the crop was insisted upon as a preventive to its perpetuation. Treating the seed-tubers with any of the well-known fungicides was also recommended as a means of prevention of the disease. The most effectual remedy yet discovered for Potato-disease was the Bordeaux Mixture. Where "finger-and-toe" appears, the crop had better be burned outright, and the land cropped for the next two or three years with something entirely different, so as to starve out the disease. As a prevention of leaf-blight in Tomatos, there should be a perfect circulation of air in the house, nothing conducing more to the blight than stagnation of air. Fresh soil every year was recommended.

Chrysanthemum Leaf-rust.

After giving his experience with many remedies, the lecturer said the most effectual of all was a mixture he prepared as follows:—Boil 1 lb. of whale-oil soap in a ½-gallon of water until the soap is thoroughly dissolved. To this add 1 gallon of best petroleum. Boil, and keep boiling, for ten to fifteen minutes, stirring all the while, until the liquid is of the consistency of gruel, then add a lump of 2 to 3 oz. of ammonia carbonate. When cold, put into jars for future requirements. For use, mix one part of the emulsion with fifteen parts of water, and spray the plants with it once every three or four weeks. He thought all fish manures should be avoided in Chrysanthemum culture, as in moist weather they engendered mildew on the plants. In using the remedy suggested, Mr. Hodder said it should not be applied to cuttings until they were well rooted, and he did not think it would be necessary to apply it when the plants are in flower.

WARGRAVE AND DISTRICT GARDENERS.

January 18.—The annual meeting was held in the Parish Room, the President, H. Nicholl, Esq., of Bear Place, being in the chair. Nearly every member was present.

The minutes of the last meeting were confirmed, and the officers and committee for the present year were elected; after which the Hon. Secretary (Mr. H. Coleby) read the annual report, reviewing the work of the Association for the past year. Mr. J. W. Groves (Hon. Treasurer) read the financial statement, which showed a good balance in hand. The Treasurer was authorised to pay the prize-money to the various exhibitors. Mr. W. Pope had gained the highest number of points.

A paper was read by Mr. F. Pether, gr. to F. Lark, Esq., Wargrave, on the "Culture of the Primula." He advocated the double-flowering varieties as useful for providing flowers for cutting, and the single-flowering varieties for use as decorative plants. Cultural directions were given for seed-sowing, potting, and their subsequent management.

Mr. W. Pope exhibited a nice group of Cyclamens, and Mr. Pether some excellent Primulas.

FRENCH NATIONAL CHRYSANTHEMUM.

Considering the very short time this Society has been n existence, the executive have every reason to be proud of the progress the Society has made. *Le Chrysanthème*, the official organ of the Society, has been regularly published, and has now reached its twenty-fourth number. The membership has passed a total of 500, inclusive of thirty-one affiliated Societies. Three Conferences have been held, at which important questions relating to the popular flower have been dealt with; and judging by the balance-sheet now presented there remains in hand a sum equal to nearly £50 in English money.

In the December number of *Le Chrysanthème*, which contains about 70 pages of printed matter, we find a list of newly-elected members, some short notes on different topics connected with Chrysanthemums, the concluding portion of M. Salète's report of the Royal Aquarium Show last November, and a rather full account of the proceedings at the Troyes Conference, with the text of the papers read and discussions arising thereout. Such a publication as this must of necessity greatly interest members living at a distance from the seat of the Society's operations, and might well be imitated by other and older Chrysanthemum societies here in England. *C. H. P.*

NORTH PECKHAM AMATEUR CHRYSANTHEMUM.

January 21.—At the annual meeting held on the above date it was stated that the income of this Society, which was established in 1894, was £172 11s. 3*d*.

There is a balance in hand of over £50, and numerous special prizes are being contributed for competition next November.

CHESTER PAXTON.

January 21.—The first usual fortnightly meeting of the year was held in the Grosvenor Museum on the above date, when Mr. E. Stubbs, gardener to Mrs. Hudson, Bache Hall, read a paper upon "Chrysanthemums." In the absence of the President, Mr. J. Jackson presided.

Mr. Stubbs has for some years been recognised as one of the most successful Chrysanthemum growers in the district, he having upon various occasions carried off the highest honours for

Chrysanthemums at the society's annual exhibition. It was from an exhibitor's point of view that Mr. Stubb's dealt chiefly with his subject; and in the course of his remarks he gave in minute detail his methods of culture, which were greatly appreciated by those who were present. An interesting discussion followed, in which other growers took part; and the meeting closed with a very hearty vote of thanks to Mr. Stubbs for his carefully-prepared paper.

THE ROYAL SCOTTISH ARBORICULTURAL.

January 24.—The annual general meeting was held at 2 P.M. on the above date in the Y.M.C.A.'s Rooms, St. Andrew's Street, Edinburgh. The president, Colonel Bayley, occupied the chair, and among those present were the Earl of Mansfield, who succeeded Colonel Bayley in the presidentship; Mr. Monro Fergusson, of Nuvar; M. P. Sheriff Mackay, The Hon. George Waldgrave, Sheriff; Mr. John Methven, Mr. W. Welsh, Liberton; Mr. Cork, Armiston; Mr. Pitcauthly, Scone; Mr. David Laird, Mr. M'Kinnon, Mr. Loney, Mr. Dunn, and a large number of foresters and others interested in forestry, including three ladies.

Thirty-eight new members were elected, bringing up the total membership to 802, fifty-nine new ones having been added during the year. We will refer further to this meeting next week.

Fruit from the Cape Colony.—Mr. George Monro, Covent Garden, writes:—"In reference to the article referring to the arrival of Cape fruit, the importations are much earlier this year than last, as I received Plums on the 16th inst., and have both Peaches and Plums in the *Scott*, which is due on Friday, January 27. Plums on the 16th made 6s. per dozen, which is, I think, a record price."

Obituary.

George Lambert.—We regret to record the death of Mr. George Lambert, at the advanced age of eighty-one years. For forty-nine years he had charge of the gardens and woods at Oakwood, Chichester, for the late John Baring, Esq. The deceased as a young man was principally engaged in landscape-work for Messrs. Page, nurserymen, of Southampton; and on the completion of the various alterations at Oakwood, superintended by him, he was offered and accepted the position of gardener and forester at that place. Forty years ago he was a well-known exhibitor of vegetables, fruit, and especially of Show and Fancy Pelargoniums and herbaceous Calceolarias, at Chichester, Brighton, and the Crystal Palace Shows. His eldest surviving son is gardener at Powis Castle, and an occasional correspondent of this journal.

GARDENING APPOINTMENTS.

Mr. H. E. Kennedy, lately employed at Halton, Bucks, as Head Gardener and Steward to Sir Alfred West, Bart., Kilcroney, Bray, near Dublin.

Mr. E. G. Wheeler, for the past eleven years Gardener to A. J. Lewis, Esq., Moray Lodge, Kensington, as Gardener to D. W. Freshfield, Esq., Kidbrooke Park, Forest Row, Sussex.

Mr. A. Young, for nearly five years Head Gardener at Marston House, Frome, has been engaged by Sir J. Heathcote Amory, Bart., Knightsayes Court, Tiverton, Devon, in a similar capacity, and enters on his duties on February 9 next.

Mr. Marshall has succeeded Mr. Miller as Gardener to the Earl of Craven, Combe Abbey, Coventry.

Mr. J. Swanwick, for the past five and a half years Gardener to C. H. Oaks, Esq., Holly Hurst, Riddings, as Head Gardener to C. Tylden Wright, Esq., Mapperley Hall, Nottingham.

Mr. G. D. Chisholm, for the past six years Gardener to Major Middleton, Acacia, Roundhay, Leeds, as Gardener to Mrs. Illingworth, Thornton-le-street, Thirsk, Yorks.

Mr. William Harrison, formerly Foreman at Shirburn Castle Gardens, Wallingford, Oxon, as Head Gardener to Col. Archer Houblon, Hallingbury Place, Bishop's Stortford, Essex.

CATALOGUES RECEIVED.

W. Shand, New Street, Lancaster—Seeds.

Geo. Cooling & Sons, 11, Northgate Street, Bath—Seeds.

W. Smith & Son, Exchange Seed Warehouses, Aberdeen—Seeds.

Hooper & Co., Central Avenue, Covent Garden, London, W.C.—Seeds.

J. Backhouse & Son, Ltd., York—Seeds, &c.

B. R. Davis, Yeovil Nurseries, Yeovil, Somerset—(1), Seeds, &c.; (2), Begonias.

Thomas Imrie & Sons, 128, High Street, Ayr—Seeds.

Collins Bros. & Gabriel, 39, Waterloo Road, London, S.E.—Seeds, &c.

W. J. Watson, Ltd., Town Hall Buildings, Newcastle-on-Tyne—Seeds, &c.

Cunningham & Wyllie, 93, Mitchell Street, Glasgow—Seeds.

W. Walters & Co., 767, High Street, Leytonstone, London—Wood Roller Blinds for Shading Glasshouses.

W. P. Laird & Sinclair, Dundee and Cupar, Fife—Seeds.

W. Atlee, Burpee & Co., Philadelphia, Pa., U.S.A.—Seeds.

W. Watt, Cupar and Perth, N.B.—Seeds.

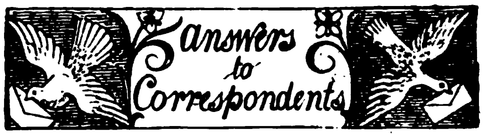
Dobie & Mason, 22, Oak Street, Manchester—Seeds.

Kohlmannslehner & Schwenke, Hauptstrasse, 130 and 131, Berlin—Seeds, &c.

Vallerand Bros., 28, Avenue Faidherbe, Asnières, Seine, and 23, Rue de Vancelles, Taverney (S. et O.)—Seeds, &c.

Vilmorin-Andrieux & Co., 4, Quai de la Mégisserie, Paris—General Catalogue of Seeds.

William Lickley, 12, Queen Street, Carmarthen—Seeds, &c.



Answers to Correspondents

Books: *Nemo.* Lindley's *School Botany* (Bradbury, Agnew & Co.).

Cape Gooseberry: *C. B.* See an article in our number for September 18, 1897, p. 202.

Dark-coloured Honey: *Lucy M. Baines.* Dark sections are always a very difficult thing to dispose of, and the past year has been very exceptional in that respect. The best way is to extract them, because now honey dark-coloured can be more easily disposed of; it can also be used for making candy-cake if no sale can be got for it after it has been run out.

Diseased Seakale: *W. S. H.* The roots sent appear to be healthy, except in the blackened parts you mention. In these black parts a fungus is everywhere present, and is the only likely source of mischief we can find. Owing to the position of the fungus near the sap-carrying vessels, it could easily extend upwards into the young growths. You could propagate from the stock by using parts free from black; place them in good fresh soil, and otherwise keep the new crop carefully away from the old.

Durham, Northumberland and Newcastle-upon-Tyne Horticultural Society: *W. Fulford.* J. J. Gillespie, Jun., secretary, Cross House Chambers, Westgate Road, Newcastle.

Moles and Tennis Lawn: *D. H. D.* There remains nothing but trapping; or watching the animals at work, and throwing them out of the soil with a dock-spud.

Names of Fruits: *J. P. & Sons.* Apple: Dumelow's Seedling.—*J. M.* Apple: Striped Beefing.—*J. C.* Apple: Mère de Ménage.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*S. C.* Dendrobium aureum, oftentimes called D. heterocarpum, a very pretty flower, with much fragrance.—*Tar.* Muscari racemosum, Starch Hyacinth, British.—*Dr. H. M.* 9, Abies grandis; 10, Retinospora squarrosa of gardens; 11, Retinospora plumosa of gardens, both these are forms of Cupressus pisifera; 12, Cupressus macrocarpa; 13, Cupressus Goweniana; 14, Juniperus chinensis; 15, Abies magnifica, it may be the fine variety called shastensis. In the absence of cones, these identifications are more or less conjectural, but we have compared them with our specimens.—*C. B.* The plant of which you now send cones is Cupressus lusitanica, the Cedar of Goa. The name formerly given in the absence of cones was wrong. Without the fruit the identification of Conifers must be conjectural. The cones will be ripe in a few weeks apparently, and the seeds should be sown in spring in light open soil, in pans in the greenhouse, and pricked out as soon as the plants are big enough to handle. It will not be hardy so far north.—*J. M., Nottingham.* 1, Asparagus; 2, Fittonia argyroneura; 3, F. Pearcei; 4, Davallia bullata; 5, Rohdea japonica variegata.—*A. C.* Muehlenbeckia complexa, a hardy trailing-plant.—*W. G. S.* Calanthe vestita luteo-oculata.—*W. W.* A bad flower of Lælia anceps.—*W. H. D.* 1, Begonia Dregii; 2, B. Digswelliana; 3, B. Ingrami.—*R. C. W.* A form of Calanthe × Veitchi, remarkably distinct from that generally cultivated.—*South Wales.* Cryptomeria japonica.—*Amateur.* Adonis autumnalis.

Nottingham Catchfly: *C. B.* Herbaceous perennial, 2 to 3 feet high, with viscid oblong leaves, and loose panicles of drooping flowers; grows on the cliffs, near Dover. Its Latin name is Silene nutans.

Palms Damaged: *C. J.* The specimens sent show some error or accident in the cultivation. The appearance of the foliage suggest that they have been kept too cold at the roots, and too hot overhead. Or they may have been watered with some strong chemical manure.

Seeds: *C. B.* So far as we can tell, the seeds are those of some Lily. Another time, please write separate questions on separate pieces of paper. To mix up numerous questions on different subjects on one piece of paper is to give us more trouble than is necessary.

Strawberries Dying Off: *W. W.* The roots and roots-stocks sent show injury from insects, probably weevil grubs, and weevils themselves, although we could only discover young earthworm in the package. Will you kindly send other plants, taking them up with a ball of earth, packing them securely in a box, when, if insects, grubs, &c., are found therein, we may be enabled to identify them. In any case, the plants are not likely to be of any service, and they should be dug out of the land intact, and thrown on the garden "smother-heap," so as to make sure that they are destroyed. Then afford the land a dressing of quick or gas-lime. If the dressing of the latter be a heavy one, let the land lie fallow for six months, or trench it three spits deep, so that a vegetable crop may be taken at an earlier period. Permanent wire protection over Strawberry-beds may have some advantage over fishing-nets; but the evils that follow the shutting out of the insect-eating birds, more than counterbalance them. If you do not remove this wire-netting entirely, the birds might be allowed access to the area covered by leaving the ends and sides open at all seasons except the fruiting one.

Tomato-seed Cleaning: *H. H. R.* There is no better method than to let the fruits decay to a considerable extent before washing out the seeds, which is then very readily done in a fine wire sieve, held over a tub filled with warm water. If the fruit is allowed to decay in a cold place there is no chance of the seeds germinating in the pulp.

Tuberoses: *H. I J.* It does not pay to grow on the offsets till they come to flowering age. It can be done, doubtless, in the warmest parts of the country, but imported roots are so cheap, that it is scarcely worth the trouble. Forced bulbs are of little use, offsets being weakened by the forcing they have undergone; although offsets from plants grown cool might not suffer deterioration.

Violets: *J. L.* Better few and good than a great number of varieties. *Early, single*: California, Devoniensis, Victoria Regina (very early), The Czar, Princess of Wales. *Double*: Comte de Brazza (white, fragrant, large), De Parma, Lady Hume Campbell (late), Marie Louise (lavender-blue and white), Neapolitan (mid-season).

"Worms" in Manure: *H. O. E.* Species of Gordius. These creatures exist on decaying substances, and, like the millipedes (Julus), they are not injurious to living vegetation.

Communications Received.—Freeman Page.—A. F. S.—A. W.—Richmond Horticultural Society, secretary's name illegible.—G. M.—G. N.—M. C. C.—H. D., Sydney.—F. W. B.—H. E., Naples.—T. B.—Prof. Sargent, Boston.—Fischer de Waldheim, St. Petersburg.—G. Beggs.—R. J. A.—C. L. B.—W. E. G.—S. Heaton.—W. K.—L. E. B.—G. McKinley.—J. B. Sowerby.—T. E. S.—D. T. F.—J. U.—R. D.—J. Baxter.—J. L.—E. M.—G. W.—H. T. M.—G. G.—H. W. W.—R. Craig.—J. Kislingbury.—A. S. W.—G. B.—J. E. K.

Specimens and Photographs Received with Thanks.—R. Gill.—G. M.

Important to Advertisers.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation, *and that it is preserved for reference in all the principal Libraries.*

(*For Markets and Weather, see p. x.*)

THE
Gardeners' Chronicle

No. 632.—SATURDAY, FEB. 4, 1899.

ROME.

THE FLORA OF THE COLOSSEUM.—I was told before visiting Rome again, after an absence of some years, that a very sad change would present itself to me, and this in more ways than one, which must be seen to be realised. This anticipation has been fulfilled to the letter. When you come in from the north by the railway, and still more when you begin to wander about the place on arrival, you see at a glance how different the "setting" of the whole thing now is from what it used to be, and how much there is to be deplored. A great sea of houses quickly run up, badly finished, and far from being all occupied, gives a mournful aspect to the city. If ever speculation has run riot in this world it certainly has done so in Rome, to the detriment of every interest that was concerned. But while so much must be said in a very lugubrious strain, there is an infinitely comic incident that is mingled with it. It is absolutely true that some of these miserable houses of which I have spoken, have never come to completion, and that Ivy, which is ever on the alert to cover up all deformity, has seized on these buildings, and has thrown over them a sort of air of antiquity, and made them respectable in spite of themselves. But did Ivy ever have to fulfil such an office before? It has given a sort of stamp of age to the erections of yesterday, which are modern in every sense of the word; they have actually become ruins before they have been anything else. But if these lamentable rows of ill-finished houses offend and sadden you, there is one great shock which goes beyond all others, and which completely beggars description in the sight of the Colosseum in its present abject and dishonoured condition, it used to be so touchingly beautiful; indeed, "shock" is no word for the mental surprise and the feelings of keen regret when the well-known spot is revisited. "The vegetation has been torn away from the Colosseum." I could hardly believe my eyes when I saw the very same object which used to have such a tender and pathetic appearance, now standing up against the sky, gaunt, naked, and even cruel in the sort of demeanour which it has—I use the last adjective with intent, as it so graphically describes the present harsh condition of the Colosseum, and one now realises (as you could not under the old state of things) the barbarous use for which the building was originally intended. It is this aspect of savagery which offends one so dreadfully, its very worst side is put foremost, and all the hallowing associations, the ennobling victories of faith of which it was the scene, are forgotten entirely; the plants and the trees, the shrubs and the Ferns, which used to live there so lovingly and thrive in such delicious abundance, were serviceable not only for their own intrinsic beauty, but they threw as it were a veil over the dreadful deeds of the past, and the events came down to you in such a softened way, you could bear to think of them. But all that is altered. The Colosseum seems now to say—and as far as it goes, it says nothing else at all—here bloodshed in ten thousand instances was rife, here tyranny went to every imaginable excess, and these bare walls, as they are crumbling into dust, record some of the vilest usages of mankind. Of beauty, as beauty, there is very little left to discover; and a writer in the *Times* only a very short time ago, though he used an unpleasant simile, was not at all going too far when he said that the Colosseum of Rome "looks at present like a great decayed tooth, both in form and in colouring." It may be added to this, that it is suggestive of a fang in the uses to which it was applied. I sometimes wonder what Lord Byron would say if it were given to him to behold the object which he loved so well. I know what he would not say: "A noble wreck in ruinous perfection."

Years ago, when I last spent a winter in Rome, I well remember the interest which was taken in the flora of the Colosseum. One of the English physicians in residence here worked it up well, and Dr. Deakin's little book was of great use to all who cared for it. Now that book is all but forgotten in the place, and I could only get a sight of it again after a great deal of trouble by the kind assistance of the Vice-Consul, who gave me an introduction to the authorities of the Collegio Romano, where an old copy was disinterred. Dr. Deakin in his lifetime was worried by the premonitory symptoms of the flood of vandalism which was so soon to set in; but he never thought how far it would rise, for he says in his preface to the *Flora of the Colosseum of Rome*, May, 1855: "The collection of the plants and the species noted has been made for some years, but since that time many of the plants have been destroyed by the alterations and restorations that have been made in the ruins—a circumstance that cannot but be lamented. To prevent a further falling is most desirable; but to carry the restorations and the brushing and cleaning to the extent to which it has been subjected, instead of leaving it in its wild and solemn grandeur, is to destroy the impression and salutary lesson which so magnificent a ruin is calculated to make upon the mind." These words now read almost as if they were prophetic; but they are left far behind in the wholesale destruction that has ensued. It would be enough to make Dr. Deakin turn in his grave if he could now see things as they really are.

Of course, there might have been some consolation in the thought that an imperious necessity had brought all this about; but even this is denied to us. It is gravely asserted by competent persons (see p. 17 of *Walks in Rome*, by Augustus Hare), that so much harm accrued to the building by the ruthless manner in which the plants and shrubs were exterminated, that a like deterioration would not have occurred in 500 years if they had been left to themselves. No discrimination of any sort was displayed, and tender flowers, as much as strongly-rooting shrubs, were alike torn up and destroyed.

The Colosseum of Rome is a grand place in its capacity for embracing the most varied vegetation. It is, I believe, a fact, that there are 6 or 7 acres available in it for the cultivation of shrubs and plants, though it does not look so to the eye—or, at any rate, to my eyes. Dr. Deakin gives that as the estimate; and I asked his successor, in the way of interest in the Flora of the Colosseum—Mr. Dwight Benton—of whom more anon, what he thought on this point, and he said that he endorsed the assertion, for if all the available places, the steps and the corridors, the walls and the passages, were spread out upon a level, they would amount to nothing less. But these 6 or 7 acres are arranged so that the idiosyncrasies of all sorts and kinds of plants are provided for. Variety is predominant; and not only is it the case that there are innumerable nooks and corners where the rays of the sun can hardly penetrate, but high up in the walls there are cracks and crevices which are exposed to the fiercest blaze that could be imagined, and between these two there are all sorts of gradations and differences, so that if a plant were ill at ease in one situation, it soon found out another, where it got all that it could desire. And in the case of some few plants which can manage to live anywhere, such as the common Speedwell, there seems to be a kind of difference of habit which they have assumed, according to the elevation at which they grow, or the low-lying spot in which they have found a home. Dryness and wetness, a thin or a deep soil, exposure to the winds of Heaven, or a delicious shelter in many a favoured nook, heat and cold, all these, and other considerations, I should imagine, have made the Colosseum to be the finest "Linnæa" in the world, for it might be a chosen home for some of the most beautiful shrubs and plants that could be named. It is a fact that in Dr. Deakin's time no fewer than 420 different species were here congregated together. Now, if twenty of these, which were rather strong-growing, such as Figs, Olives, and Cherry-trees, had been condemned, at least 400 might have been left unmolested to live on, and would have done no harm whatsoever.

That some idea may be given of the floral treasures of which the Colosseum was full, let the few following names be taken at random out of many others. Here were found Anemone hortensis, Geum urbanum, Dianthus prolifer, Viola odorata, Vicia cracca, Cyclamen hederæfolium, Arabis, Draba, Cheiranthus cheiri, Rosa sempervirens, Cistus salvifolius, Phytolacca decandra, Trichonema columnæ, Adiantum capillus veneris, Lonicera Caprifolium, Papaver dubium, Acanthus mollis, Lathyrus Aphaca, Ferula communis, Capparis spinosa, and very many others which equally deserve to be mentioned. The Colosseum seemed to focus a large proportion of the flowers of Italy, and what was rather strange was that some things were to be seen growing there which are not enumerated in the *Flora Romana*. How they got there is rather a puzzle, unless human agency was employed; but in one way and another, by the birds, by the winds, it may have been in some cases by the intentional scattering of seed, there was a delightful collection of things brought here which held its own, and by the selection of the fittest, covered those old walls with a drapery that brought grace to the ravages of Time, and charmed away some of the most dreadful memories of which the place is full. All this is at an end, the place looks utterly denuded, though Mr. Dwight Benton has been able, after long searching, to put his hand on about 200 different specimens of the glories of the past which are still growing here and there in some unnoticed spots. *Henry Ewbank.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT FREELAND, PERTHSHIRE, N.B.

THE princely estate of C. L. Wood, Esq., is situated some four miles south of Perth. Every department of gardening is well carried out there, and Orchids are cultivated with conspicuous success. I have visited the gardens occasionally for many years, and have watched the growth of several species with great interest. Fig. 22 represents a specimen of Odontoglossum crispum that had thirteen spikes of bloom. A plant of O. Pescatorei also had 200 flowers, and is shown in fig. 23. In no other collections do the Odontoglossums succeed better. I have seen hundreds of spikes of bloom at one time, and they are generally arranged in a span-roofed house, interspersed with specimens of the best Masdevallias, and so they make a fine display, as may be seen on reference to fig. 24. Other species of Orchids, such as Cattleyas, Lælias, Cypripediums, Dendrobiums, Oncidiums, Vandas, Aërides, &c., also succeed admirably. Many dozens of grand Orchid flowers have been sent from this collection to adorn the Queen's table at Perth Station Hotel when Her Majesty has been dining there. Mr. William Sharp, the head gardener, has had full charge of the collection for many years. *A. Outram, Fulham.*

CYPRIPEDIUM × LUCIENIANUM.

This undoubtedly pretty hybrid has always been looked upon as a sort of puzzle. When Messrs. Linden originally named it, and published some remarks on it in the *Journal des Orchidées*, its parentage was presumed to be between C. villosum and C. × œnanthum superbum, and that hypothesis has been considered correct by experts in this country, although there were not wanting some who thought that the firm substance of the flowers, and some other peculiarities, rendered it possible that it might be a C. bellatulum cross, the lack of traces of that species in the progeny being due to the strong individuality of C. villosum, being exercised as it is generally in crosses with Zygopetalum Mackayi. This view was strengthened by the fact that the raiser always maintained that it resulted from C. villosum × C. bellatulum. The question is again raised by J. Leemann, Esq., the owner of that fine collection of Orchids at West Bank House, Heaton Mersey, who sends a flower closely approaching that of C. × Lucienianum, figured in *Lindenia*, viii., t. 362.

Mr. Leemann, in his letter, says :—"The plant, of which I send you a flower, together with four more seedlings of the same batch of hybrids, has been raised in this country, and the vendor and raiser, from whom I got these plants only quite recently, is most positive in his assertion that C. bellatulum, and not C. œnanthum, is the pollen-parent. Out of my five plants three were in flower when I bought them. All were fine, though different from each other in some degree."

The flower sent may be likened to a very large C. villosum in its general form, but with much larger dorsal sepal, the base of which is greenish-yellow, with many heavily marked lines of dark purple spots, which change their hue to rose-crimson as they spread over the broad pure-white margin. The petals and lip are whitish-yellow, tinged with purple, and the whole surface of the flower is very glossy. The staminode, which I have compared with forms of C. villosum and C. Boxalli, seem to be but little different from that of the typical C. villosum, viz., large, fleshy, and yellow, with a raised green-tipped keel from the centre to the front. This is what one would expect if C. × œnanthum superbum (Harrisianum × insigne Maulei) were one of the parents, as through C. × Harrisianum it receives a second infusion of C. villosum, and in C. insigne the staminode is of a similar form. Following this line, Hansen, in his *Hybrid Orchids*, suggests that C. × Lucienianum is a form of C. × nitens, which it is not. Perhaps some reader may give evidence on the knotty point. *James O'Brien.*

CALADIUMS.

OF late years the Caladium has become more extensively cultivated, and is accepted as a useful and handsome plant, serviceable alike as a specimen in the stove, and as a decorative plant for use in dwelling-rooms. The excellent groups of these plants exhibited at the great shows of the Royal Horticultural Society in the Temple Gardens, and at the principal exhibitions in the provinces, have, doubtless, contributed largely to the increased desire for new varieties, which is likely to continue so long as raisers meet with anything like the success that has attended their efforts during the past few years.

In making a selection of the best of the introductions of late years, I would mention the varieties Lady Northcote, Pantia Ralli, Sir Oswald Moseley, Marquis of Camden, Mrs. McLeod, Lord Penrhyn, Ladas, Silver Cloud, Lord Rosebery, J. Pierpont Morgan, and Her Majesty. These are possessed of leaves of infinitely finer and more delicate markings than many of the older forms ; and after a year or two, when the severe strain of excessive propagation upon their constitutions has been overcome, they will, I believe, be found to be thoroughly fit for the purposes named above, provided the plants are properly prepared before they are subjected to the unfavourable conditions inseparably connected with any system of indoor furnishing. The varieties Mrs. H. Veitch, Louis A. Van Houtte, Michel Buchner, Gaston Chandon, Charlemagne, Madame Alfred Magne, Gaspard Crayer, Lymington, Golden Queen, Gerard Dow, candidum, and Isis, form a dozen of the older sorts, sufficiently diverse in character to form the nucleus of a collection, and their constitution is too well known to need speaking to here.

If it be contemplated to form a collection of Caladiums, the present is the best time in which to purchase the plants, as dormant bulbs can be secured at a slightly lower figure than later, when they have been potted up. They will need to be potted as soon as they are received from the nursery.

A light compost, such as would be formed of leaf-soil, loam, peat, and sand, in equal parts, I find to be best at this stage. This should be passed through a ¼-inch sieve. If a bulb has several crowns, and it is desired to increase the stock, cut out the single crowns and rub the wounds thus made well over with charcoal-dust, to arrest bleeding and prevent decay. A close case is essential to a successful start, especially if the tubers have been severely divided. If bottom-heat be also available, then by all means use it, as this will facilitate growth, and a good start thus given the plants is noticeable throughout the season.

After a fortnight the strongest varieties will have made sufficient growth to admit of their being removed to the stage, thus making room for others of the many plants that require a close atmosphere at this season. Thumb-pots having been used in the first instance, a shift into 48's (4½ inch) pots should be given as soon as the plants require it. Provide abundant and carefully-laid drainage, and use clean pots. The soil for this second potting should consist of fibrous loam and peat in equal parts, to which a portion of horse-droppings, sand, and charcoal should be added, and thoroughly mixed. Moderately firm potting must be practised if the best results are to be obtained. A slight spraying amongst the pots with the syringe should be used in place of the water-pot for a few days, but when water is given the roots, let it be in a tepid condition, and apply sufficient to saturate the whole of the soil and roots. A temperature of 65° to 70° by day during January and February will be a safe figure of heat in which to keep the plants, and 5° more may advantageously be added in March. A further shift will in most cases become necessary during the season, but no potting should be done after the middle of July, as growth becomes slow after this date.

At no time should the foliage be sprayed or syringed overhead. Such a practice very soon disfigures the leaves, and in the case of many of the finer leaved kinds, it destroys the leaves entirely. Abundant atmospheric moisture is, nevertheless, absolutely essential to high culture. This may be brought about by spraying amongst the pots, paths, and any such surfaces. When damping down the houses for the night, I have found a spraying of weak liquid manure beneficial, but this can only be done when the houses in which the plants are cultivated are situated at a distance from the mansion. Weak farmyard manure-water, with a very slight amount of soot added, makes an excellent tonic when the plants are in need of such, and the pots are well charged with roots. Clay's Fertiliser used about once fortnightly is also to be recommended at the rate of a teaspoonful to a 48 (or 4½-inch) pot. The plants delight in copious supplies of water when growing freely, but as soon as it is observed that growth is less quick than formerly, great care in its application is necessary; and as the plants show signs of going to rest, the supply must be materially decreased. It is well, however, to still maintain a brisk temperature, as otherwise damping may set in, and effect much damage before it is noticed. As soon as the leaves are in a sufficiently ripened state to be removed, the pots should be laid on their sides in the stove in a site free from drip, in which position they may remain ; during winter they may be shaken out and placed in pots containing dry sand and cocoa-nut-fibre refuse. *J. F. McLeod.*

GARDENING IN THE CHANNEL ISLES.

GUERNSEY.—In the gardens of Captain Corre, Rohais, I found many rare and choice plants and shrubs of unusual size, existing without any protection whatever. Many had been planted in spots suitable to their requirements, indicating in the possessor a knowledge of the needs and peculiarities of the respective subjects. Now after some years, the freedom and vigour of the whole of them are very marked. Here were choice species of Bamboo, some of great size and height ; B. Simoni is 20 feet high, in immense beds and clusters ; Dracæna indivisa, that must have been fine trees previous to being cut down by the severe winter, three years ago last March, the stem as shown by the old stump must have been 4 to 5 feet in girth, and from this base numerous young plants, in some cases ten to twenty, have shot out, which are already 8 to 10 feet in height. Many such clumps may be seen about the ground, and one could not help feeling sorrow that such fine trees should have been killed by the 17° of frost experienced. Pavia macrostachya is a big shrub with numerous spikes of flowers similar to those of the Horse-Chestnut ; Magnolia grandiflora is represented by trees 35 feet high, covered at the time of my visit with its massive white flowers ; Erica hyemalis grows here to a height of 20 feet ; Edwardsia grandiflora attains a height of 20 feet ; a noble pair of Chamærops excelsa, that have stood out many years, and whose stems and crown of leaves are of a most robust character. These plants are about 20 feet high, and quite in keeping with their neighbours. Close by a clump of Helianthus autumnalis superba, 5 feet high, was covered with yellow flowers ; Aralia Sieboldi, represented by a large specimen in flower ; and in close proximity were Spiræa Lindleyana and S. ariæfolia. The purple bracts and flowers of Leycesteria formosa were arching over fine clumps of the Belladonna Lilies, and adjoining were bushes of Azalea indica alba, and of numerous Ericas.

In a rockery close by, which extends some length, was discovered a choice collection of hardy Ferns, as the term is usually understood ; but amongst them were many that often receive intermediate-house and stove treatment. As samples, I may mention Lomaria nuda, Drynaria pustulata and Billardieri, Lomaria chilensis, and Woodwardia radicans, whose pendent fronds imparted an air of singular attractiveness. Rambling over the rocks were masses of Pteris scaberula, and plants of Polypodium vulgare cambricum were very abundant; Beschoneria yuccoides had produced a spike 8 feet long, and already several young plants have pushed up at the side of the base of the flowering crown, which will soon die away. Adjoining these were numerous Retinosporas of large size and intensiveness of leaf colour; and Arundo conspicua had grown to very large dimensions, for there were just fifty plumes waved in the breeze.

In the herbaceous borders I notice fine clumps of Lobelia cardinalis Fire King, the flowers intensely brilliant in the strong sunshine. Watsonias in variety had been very full of flower, whilst of Gladiolus the spikes and flowers were especially fine. Beds of Tigridias next came into view, these plants being in thorough keeping with other bulbs already mentioned. Fine Palms, Dracænas, Eucalyptus, met one at almost every turn, and coming o the end of the rockwork again we observed many of the choice varieties of Athyrium f. fœmina, as well as the better kinds of Lastræa filixmas. Truly, a lovely and interesting spot.

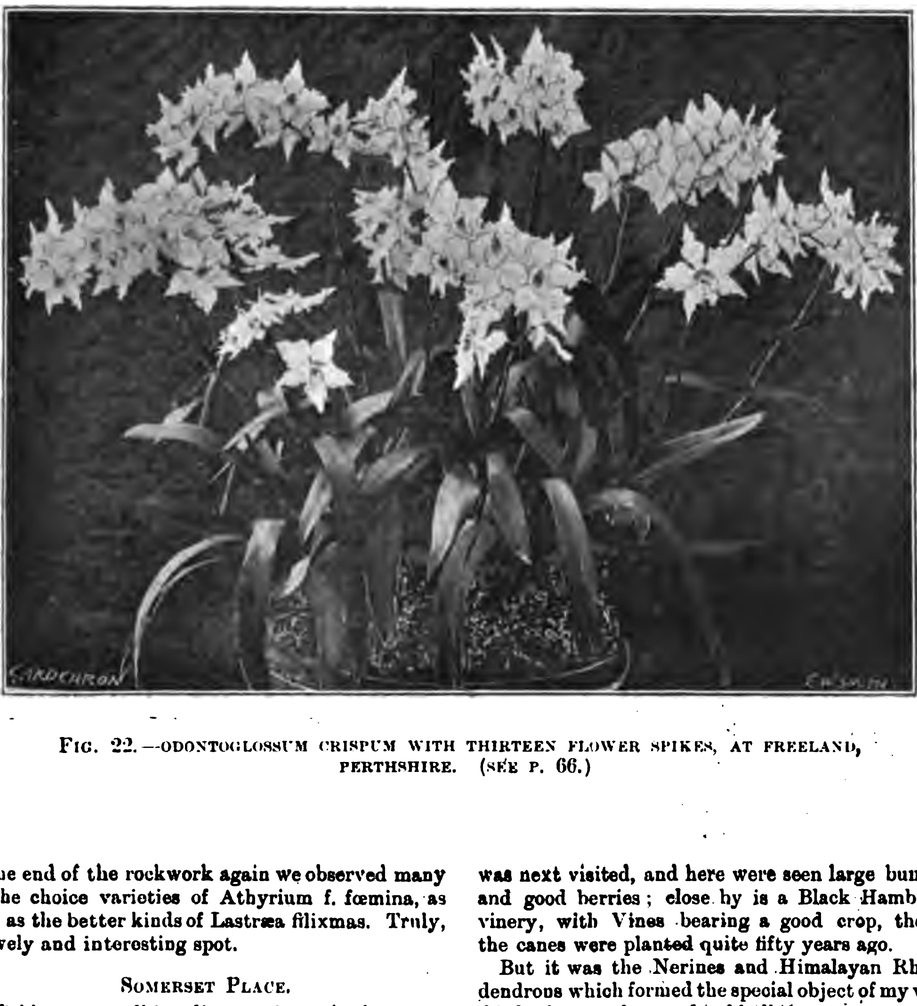


FIG. 22.—ODONTOGLOSSUM CRISPUM WITH THIRTEEN FLOWER SPIKES, AT FREELAND, PERTHSHIRE. (SEE P. 66.)

SOMERSET PLACE.

Within easy walking distance from the foregoing is the residence of J. L. Mansell, Esq., whose house, covered densely with Ampelopsis Veitchi, was just then very attractive. Here Mr. J. Marsham is the head gardener. The garden is of medium size, and tastefully laid out, and it was so completely planted and cropped in every portion that much more may be seen here in the small area than on many gardens of twice the size. There are arches over the paths in several parts of the kitchen-garden, and very beautiful they are covered with climbers in bloom, and so numerous are the flowering plants in this portion, that it almost seems like growing fruits and vegetables in broad herbaceous borders.

On some of the arches, plants of Solanum Jasminoides form very dense growth, and flower freely, on another the orange-scarlet flowers of Bignonia radicans covered the entire top of the arch. This was a very interesting object, and to be informed that this plant had stood 17° of frost, when the upper part was all killed, but that it broke very freely again from the root, was a piece of information such as is seldom obtained. Another archway was clothed with Mina lobata. These plants were sown in March last, and planted out in May; they certainly have grown well, for their quaint yet pretty flowers appear all over the archway. Beds of Phlox Drummondi, of Zinnias, Marigolds, Asters, &c., were very fine, the colours of the flowers intense. Ceanothus azureus and C. Veitchi planted against the walls were flowering beautifully; Kerria japonica, Cotoneaster horizontalis, also on walls, was densely covered with its small scarlet berries; the white varieties of Nerium Oleander Madame le Grand, purpurata striata, rose-coloured; and aurantiacum, yellow, were represented by nice plants.

A capital vinery planted with Muscat Grapes was next visited, and here were seen large bunches and good berries; close by is a Black Hamburgh vinery, with Vines bearing a good crop, though the canes were planted quite fifty years ago.

But it was the Nerines and Himalayan Rhododendrons which formed the special object of my visit. Of the former thousands of bulbs are grown, among them being a large number of hybrids raised on the place. Some of the plants were already in flower, but the larger proportion were just beginning to push up their flower-spikes. Many of these plants had not been repotted for years, and the bulbs as they are formed, and yearly increase in size, were clustered above those of the previous years. N. Manseli has been grown here for thirty years, and is now represented by many plants. N. Correi, a cross between Fothergilli and Sarniensis; and other named sorts are N. Plauti, N. coruscans major, N. atrosanguinea, N. flexuosa, N. Moorei, N. Cammi, N. cœrulea, N. amabilis, N. pudica, and N. Elwesii. These with the hybrids now coming on will make a glorious show in a short time. The intense beauty of many of these I could gather from pictures painted by Mr. W. Caparn, who kindly showed me a large collection of them. He also showed pictures of choice Daffodils grown on the island. That these Nerines are beautiful objects for conservatory and house decoration is generally accepted, and the many forms grown are of especial interest. Magnificent Cannas were growing in a large glass-house close by, with large plants of the blue and white Campanula pyramidalis, 6 feet high, with from twenty-four to thirty stems apiece.

Daffodils in quantities, and of choice varieties, were planted, for here as at many other places it is necessary that the best only be grown, and plenty of them. Montbretias are grown in large beds, and spikes by the hundred are continually cut from them. On entering a stove-house close by, I noticed the roof was covered with several climbers; among them, Aristolochia elegans was flowering, with its singular purple-spotted, trumpet-shaped flower; Bougainvillea glabra, Allamanda Hendersoni, Thunbergia fragrans, and T. grandiflora—the beauty of these latter ones is very great, their pale sky-blue flowers were very numerous, and of large size.

The Rhododendrons are planted in a different part of the gardens, and are pictures of health; in the early summer they had been objects of beauty. A plant of A. Falconeri was some 6 feet high, with large leaves, and bearing creamy-white flowers, which come densely placed in globose heads; R. Shilsoni, not yet flowered; Mrs. Butler, pale pink, and with fragrant blooms; fragrantissimum, white; barbatum, scarlet; argenteum, full of buds; campylocarpum, yellow, a most beautiful and distinct variety; Princess Alice, white flowers, a grand plant; Thompsoni, deep red and glossy; Aucklandi, having immense white flowers, tinged with pink, and spots of a darker colour; calophyllum, white, tinged with yellow; Countess of Haddington, a large plant full of vigour, flowers rosy-pink; Assamicum, and others, all in most remarkable health and vigour, being dense bushes 5 and 6 feet high.

Near by was a fine plant of Magnolia conspicua, which in the early spring had been full of flowers. The Dracænas, Chamærops, and other sub-tropical plants in the borders surrounding the flower-garden, added a singular charm to the place, and this and every other portion was in good keeping, and reflected great care and diligence on the part of the gardener. *W. Swan.*

THE BULB GARDEN.

MUSCARI RACEMOSUM CARNEUM.

This variety of the large, deep-coloured Grape Hyacinth is well deserving of the notice of those who care for this pretty class of plants. It comes, so far as the writer is aware, nearer a true pink colour than any other Muscari. The variety of M. botryoides named carneum is very much lighter than this, and is altogether a less "effective" plant, if we may use such a term regarding these modest flowers. I believe it originated in the garden of Messrs. Dammann & Co., of San Giovanni à Teduccio, Italy, from whom I had it several years ago. I afterwards lost it, and two years ago, when I ordered it elsewhere, the common deep blue M. racemosum was sent. I hope, however, that I have now obtained the true pink variety.

SCILLA LILIO-HYACINTHUS ALBA.

Some years ago, Mr. William B. Boyd, of Faldonside, Melrose, sent me a bulb of this Squill, informing me at the same time that it was very rare. Mr. Boyd also stated that he had found it in an old garden in Berwickshire. Before it flowered, in going through an interesting old garden in the Stewartry of Kirkcudbright, I came upon some clumps in bloom. When the bulb got from Mr. Boyd flowered, it proved to be the same as those in the Kirkcudbrightshire garden. The typical blue Scilla Lilio-hyacinthus is not a particularly desirable plant, and one would be inclined to say that the white variety is inferior to the white varieties of Scilla campanulata. Its rarity is, however, a consideration; and it is, upon the whole, a desirable plant to have in a collection of Squills. Its broad leaves and scaly bulbs make it very distinct from other species. S. Lilio-hyacinthus albus was known to Miller, who also mentions a red variety, which I would like to meet with. He also suggests raising this Squill, known to him as Lilio-hyacinthus—the Lily Hyacinth—from seeds, in order to obtain varieties.

SCILLA ITALICA ALBA.

Through seeing this rare variety of the Italian Squill in Maund's *Botanic Garden*, the writer has been induced to try to obtain it, and has, through the kindness of a correspondent, been able to do so at length. The type, which, by the way, never seeds in my garden, is not sufficiently well-known by bulb-growers. It is quite hardy, and increases fairly rapidly. The variety under notice is not so effective perhaps, but it is yet pleasing enough to be prized. Maund tells us that he owed both the varieties to the Rev. W. Bree, of Allesley.

A few years ago, a Dutch bulb-grower, from whom one can often obtain out-of-the-way plants, offered S. italica alba in his catalogue. I succeeded in obtaining a bulb, but lost it soon after, probably owing to the border in which it was planted being too dry. It was not again offered, and for some time I was without it. Through the kindness of a well-known lady gardener in Surrey, and that of a Suffolk gentleman, I have not only again been successful in obtaining this Scilla, but I have also ascertained that their stock came from the garden of the late Rev. John Nelson, of Aldborough. The latter, from whose garden have come so many interesting things, told one of my correspondents that this white Scilla was "unique." It does not appear to have become more plentiful since that time—some fifteen years ago. I am told, however, that it is not difficult to grow, and as the type does well, one is in hope that this plant, so long coveted, may grow as satisfactorily in a similar place. There is no reason why a pink or flesh-coloured variety of Scilla italica should not be in existence as well. *S. Arnott, Carsethorn, near Dumfries, N.B.*

DUNS CASTLE.

(Continued from p. 49.)

THE approaches to the Castle from the town are by two avenues—the north and the south—and here again the timber which has made the estate famous throughout the south of Scotland, attracts the attention. The south approach is about a mile in length, and is through an avenue of magnificent Beeches which effectually screen the building, until a graceful and natural sweep brings the visitor in full view of the structure. The north approach is not quite so long, and here again, on nearing the Castle, a stately avenue is passed through—this time of Limes. Of this avenue more than a passing word must be said.

On October 14, 1881, a terrible gale swept the south-east coast of Scotland, resulting in an appalling loss of life to the dwellers in the villages engaged in the herring fishing in these parts, and, sweeping across the country, did irrevocable damage to woodland and property. Exposed to the fury of this hurricane, the avenue under note—then a veritable bower, the branches meeting overhead from end to end—suffered severely, many mighty monarchs being then uprooted and laid side by side. At the end next the Castle, on one side, for almost half the length of the avenue, not a tree was left standing, and the spectacle presented when the fury of the gale was expended was indeed a pitiable one. The late Mr. H. J. Hay, a most enthusiastic arboriculturist, was in despair at the ruin of one of the most beautiful features of his estate, but determined if possible to raise the trees, and so in some measure repair the havoc wrought. Experts were of opinion that, with trees of such age, the experiment was hopeless; but, nothing daunted, the idea was entertained and persevered in, and after considerable thought, a machine was constructed by which the trees could again be set on end, and it but remained to decide on what was the best treatment to ensure their recovery when again perpendicular. Large limbs were removed almost close to the trunk, the roots were carefully trimmed, and large circular holes taken out for the reception of the ball of the tree, on which was retained as much of the soil as possible. Into these holes—and herein doubtless lies the crux of the success of the whole matter—a large quantity of rich prepared soil was put, and into this the roots immediately struck with great vigour and freedom. So successful was the treatment accorded the fallen monarchs, that of all those raised not one succumbed, but they continue to flourish, and are now, after seventeen years, as healthy and vigorous as the remainder of their more fortunate brethren. To secure the trees against future storms three stout wires were attached to each, some 6 feet from their summit, and these wires were carried down and secured to stout posts driven into the ground at equal distances from each other, some 15 or 18 yards from the base of the tree. From whatever direction the wind might be blowing, therefore, a restraining influence was exerted on the trees, and "a threefold cord is not easily broken." The operations excited much interest at the time amongst arboriculturists, and many experts visited the estate whilst the work was being carried out.

At the back of the Castle, reaching up to the Lammermoor Hills, stretch hundreds of acres of woods, which, under the management of Mr. Skeldon, the head forester, are in excellent condition, and the estate of Duns Castle presents to the thoughtful mind an instructive lesson in the successful management of woods and forests.

Through the courtesy and generosity of the proprietor, Mr. R. M. Hay, the public are allowed to ramble through the grounds at will, after having provided themselves with a pass, which may be obtained on application at the estate offices in the town; and let us hope that the day of the birth of that vandal or those vandals be far distant, who shall by their conduct deprive the public of a privilege which is so much appreciated, alike by dwellers in the district and visitors from afar. *A. A.*

FLORISTS' FLOWERS.

AURICULAS.

THE Auriculas, owing to the mildness of the weather hitherto, have been more or less active, and in another month the blooms will begin to open, unless February proves more wintry than January; and when a little artificial warmth is applied growth is quicker.

As the exhibition of the National Auricula Society is fixed for so early a date as April 18, and further, as there is much probability of a cold spring retarding the blooming season when the grower depends on cool treatment, those who can apply heat to assist in the expansion of the pips should not fail to use it.

When the plants commence to grow, the leaves, which during the winter formed a kind of hard knot, curl backwards, and enlarging, take on an intense light green or snow-white mealy foliage. Then the plants should be afforded water more or less in amount according to the state of growth, and none should be kept dry, nor, on the other hand, should they be kept wet. Air without cold draughts is necessary, and also full exposure to sunshine, and top-dressing the plants with fresh soil. This was a time-honoured practice, but it is not as much followed as it was; still, it may be necessary in certain cases, such as when roots show at the surface. The pots should be cleaned, and the drainage of each examined.

When March opens, if the weather be genial the growth of this plant will be rapid, and in the course of that month most of the flower-heads will be visible, and a few early varieties will be almost in full flower. Much, however, will depend upon the temperature maintained in the house. No grower attempts to force his plants; it simply means the keeping of a genial temperature, and it is usual to afford a little fire-heat when spring growth has set in. *R. D.*

HOLLYHOCKS.

Directly the seedlings of the Hollyhock appear above ground, the pots should be placed on a shelf near the glass, and when they have emerged into the rough leaf they must be inured to cooler conditions. The choice varieties are mostly increased by cuttings, and to do this readily the stools should be afforded a temperature of 50° by night, and 60° by day. As soon as the shoots are long enough, that is, about 3 inches, remove them off with a heel of older growth, and place each singly in a small pot in light sandy soil, with a pinch of sharp sand at the base. Afford water, and after plunging the pots in a bottom-heat of 70°, cover the cuttings with a hand-light or big bell-glass. Much care must be exercised in preventing damping, by removing condensed moisture from the glass, and water should be sparingly used.

TUBEROUS-ROOTED BEGONIAS.

Whether for pot-culture or bedding, these plants should have attention forthwith. Such really good flowers are now obtainable from seed of both double and single varieties, that it is scarcely necessary to keep up a named collection. The present time is very suitable for sowing seed. Let a sufficient number of well-drained 5-inch pots, or small seed-pans, be filled with finely-sifted fresh sandy soil; press this firmly, and afford a plenteous watering, covering the surface with sand, and proceed to sow the seed thinly and evenly, and place the seeds in a house having a warmth of 65° or 70°. Let each pot or pan be covered closely with a piece of glass. A gentle hot-bed in which to half-plunge the pots will hasten germination. The seedlings through the soil, remove the glass and stand the pots on a shelf in a warm house near the glass. As soon as any of the seedlings can be handled, prick these out into 4-inch pots, in a compost of half loam, leaf-mould, and sand. Form a slight mound with the soil in the centre of the pot, which is a capital preventive of damping, a malady the tiny seedlings are prone to during the earliest stages of growth. In removing the fit do not disturb the unfit. The seed-pots and pricked-off plants should be afforded water by dipping. Seedlings raised thus early begin to flower in June, and continue until the autumn.

THE CULTIVATION OF FREESIAS.

THERE is probably no winter or early-spring flowering bulbous plant more generally beloved than the Freesia. The flowers are pretty, deliciously fragrant, and owing to their erect, stiff stems, are very useful when cut. The plants are equally ornamental as specimens in pots. Though many gardeners cultivate them with success annually, we have many times known them to occasion some little trouble. The following hints upon the culture of Freesias we have extracted from a paper upon the subject, delivered by Mr. G. Carpenter, West Hall Gardens, Byfleet, before a meeting of the Woking Horticultural Society.

"Freesias may be cultivated from seeds. The seeds should be sown during August or September, and those sown in August may possibly flower the following spring. If the seeds be produced at home, sow them as soon as they are ripe. When once a stock has been obtained, it will not be necessary to obtain a fresh supply of seeds or bulbs each year. The seeds should be sown thinly in sandy loam and leaf-mould, in order to avoid the necessity for transplantation. The pots or pans should be placed in some sunny position in a cold frame, and as soon as the young plants appear, tilt the back of the frame to admit fresh air. The seedling plants should be thinned out to eight or nine in each 5-inch pot, and when once established afford them plenty of air to induce a sturdy growth. Shade the frame slightly during the hottest part of the day. When the plants have filled the pots with roots, they will require a good supply of water, and a little liquid-manure occasionally will be beneficial. The supply of water will need to be decreased gradually as soon as the plants show signs of resting. The most important detail in Freesia growing is to obtain a thorough ripening of the bulbs. In too many cases, when the flowers have passed, or have been cut, the plants are cast into an out-of-the-way corner, and neglected. Such practice means failure next season. When the foliage has become quite yellow, place the pots on a shelf in a vinery or in some other position facing south, where they will receive full sunshine. Have no fear that they will become over-ripened. Later, when the bulbs have ripened as much as they are likely to do, turn them out and sort them into three different sizes. Store them in a cool, dry place until required again for potting-up. Those which have been grown from seed will be found to include some of very good size.

"The next stage in their cultivation will be to repot them. This must be done at intervals, so that they may flower in succession. When once Freesias have been potted, it will be found difficult either to hurry or retard them to an appreciable extent. The first batch may be potted-up during August, and the next a fortnight or three weeks later, and so on. The largest bulbs should be put at the rate of six or seven into 5-inch pots, and those of the second size at the rate of nine or ten bulbs. But the smallest may be put thinly in pots or pans, to be grown on as the seedlings were, and they will produce good bulbs for flowering the next year.

"The best soil to use at this time of potting is composed of sandy-loam, leaf-mould, and well-decayed manure; the two first-named ingredients in equal parts. The bulbs will not require any water until growth has commenced, and a frame from which frost is excluded, or a shelf in a cool-house will afford the most suitable place for them. In a light position, with plenty of air during mild weather, they will thrive well. When the flowers appear, a little more heat may be given to a portion of the first batch, and the others will form a succession. In this way each of the batches I have mentioned previously may be again divided.

"The extra heat must be applied with great care. If too much be given, the plant will become spindly, and the flowers when cut and placed in water will soon fade. Freesias are naturally weak-growing plants, and should be supported by neat stakes before they can fall over. If they be permitted to fall about, they soon turn their heads up to the light again, and crooked stems are the result.

"The foliage of the Freesia is very delicate, and will not permit of strong fumigation, even with XL-All Vaporiser. The ill effect may not be noticed at the time, but will be seen a few days later, when the leaves turn yellow at the tips. The plants had better be kept clean by spraying and syringing with XL Liquid Insecticide, one of the best and safest insecticides of which I know."

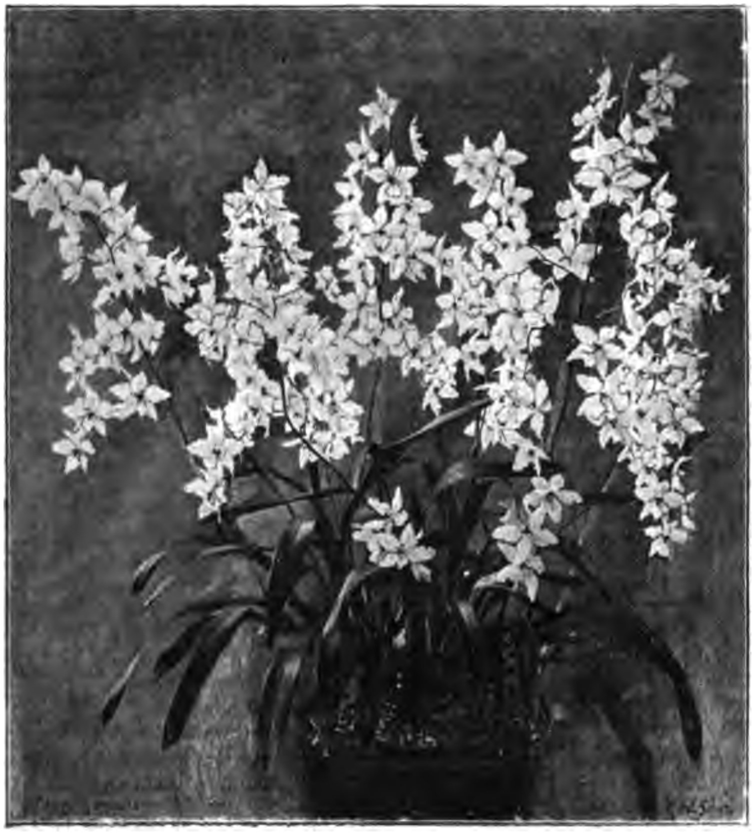


FIG. 23.—ODONTOGLOSSUM PESCATOREI WITH TWO HUNDRED BLOSSOMS AT FREELAND, FORGANDENNY. (SEE P. 66.)

LILAC FORCING IN GERMANY.

IN general, there is to be remarked considerable progress and improvement, together with an increase in the business of Lilac forcing in the whole of the country in later years; yet in the past season, up to Christmas, there was noticeable a general scarcity of fine-cut Lilac. It is not improbable—indeed, it is quite on the cards—that until the spring the inquiry for cut Lilac bloom, and specially the pure white form of it, will greatly exceed the supply. Not alone is cut bloom lacking in quantity and quality, but flowering Lilac in pots is very scarce in Hamburg, and probably everywhere in the whole of north-western Germany. This scarcity is due, chiefly, to the wet, cold summer of 1897, the like of which has rarely occurred in that region. The summer of 1898 was the exact opposite. The unfavourable weather conditions are certainly responsible for the greater proportion of the failure in this year's forcing, not only in Lilac, but in Hyacinths, Lily of the Valley, &c. Should this mischief gradually disappear as the season advances, and flower-buds in some of the unforced plants and bulbs become more fully developed, it cannot do so, or only partially, in the case of forced Lilac. Such as formed satisfactory flower-shoots, but did not mature, will not give favourable returns; and this is the case with many double-flowered varieties, as Charles X. and Marie Legraye.

The winter of 1898 being mild, and spring weather commencing early, the Lilac plants grew at first quite normally, the young shoots deveveloped gradually, and grew till well into the summer without ceasing and without setting flower-buds. The potting of the plants was, as a consequence, delayed to a later date than usual. Varieties such as Charles X., Marie Legraye, and several others, also double-flowered varieties, formed numerous, or at the least, a sufficient number of flower-buds on plants that had not been cut back too severely; still, owing to the fact that in late summer, while in full growth, it was necessary to afford them water in larger quantities, and for a longer period than usual, it was scarcely possible to get the wood matured. Further, no actual frosty weather, but only night frosts occurred to sufficiently check the flow of the sap.

The Marly Lilac, which begins to grow at an early date, can only be ripened in good time by keeping the soil about the roots very dry, if it is to be used to good effect for autumn and early spring forcing. And it is in this respect that the best forcing Lilacs differ so essentially from each other; for should Charles X. be treated like the Marly in the matter of ripening the wood, the worst results would be sure to follow. Pot-plants of Charles X. and Marie Legraye, which in ordinary years can be very easily and surely forced into flower by the third week in December, were last year very poor, the plants made shoots without expanding the flower-buds; and other plants showed very unsatisfactory development of the flowers and flower-spikes, with small crippled flowers set close together in bunches. The colour was likewise unsatisfactory. Complaints of faulty developmen are common in many parts of the continent. *Herr Fr. Harms in Möller's "Deutsche Gärtner Zeitung."*

CULTURAL MEMORANDA.

PAVETTA BORBONICA

THE usefulness of this plant can scarcely be over-estimated. The chief features of Pavetta are the markings of the leaves, and when grown with a single stem it is very effective as a table-plant, and for decorating generally. The ground-colour of the leaves is dark green, thickly studded with white spots, with a mid-rib of salmon-red. The soil best adapted for its growth is loam and peat, in equal ratio, with a dash of sharp sand. Cuttings should be taken about March, inserted in small pots, and placed in a brisk heat. When sufficiently rooted they should be potted-off, and grown on accordingly. It delights in a strong heat when growing, and well exposed to the sun; if much shaded, the leaves are not so bright and well defined. *P. Bolt, Wentworth Gardens.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Acer platanoides (Norway Maple) is a very ornamental tree of vigorous growth, and possesses bold foliage. When planted amongst the dark-leaved Pines, or in the park in the foreground, the greenish-yellow flowers early in the spring are very effective. The varieties A. p. aureo variegatum, leaves yellow and green; A. p. dissectum, deeply cut leaves; A. p. laciniatum (Hawk's-foot Maple), leaves lacerated; A. p. Reichenbachi and A. p. Schwedleri have both rich purple leaves in spring, and those planted as a background to Laburnums make a charming contrast.

Acer Negundo, fine lively green in summer; A. N. variegatum, silver variegation; and A. N. aureum variegatum, stand out boldly amongst the dark green leaves of other shrubs. The whole of these Acers thrive in a good soil of retentive character.

Iris germanica (the German Flag Iris), planted on the edge of shrubbery borders, in beds, in woodland walks, and on the margin of lakes, make a fine show of bloom during the months of May and June. They succeed best in a light sandy soil, enriched with thoroughly rotten leaf-mould and manure. Plant them so that the large fleshy rhizomes will creep upon the surface of the ground. They require but little attention afterwards, simply to keep them free from weeds, and provide them with a slight dressing of old spent Mushroom-manure annually. They may be ordered now, and planted as soon as they arrive. They are now classified into seven groups, viz., Iris germanica, with standards and falls of the same colour; I. g. amœna, standards white, slightly shaded with blue, falls same colours, veined white; I. g. aphylla, standards white, margined with blue and violet, falls similar; I. g. neglecta, very handsome, standards principally of a blue and pine-lavender colour, falls purple, blue, and violet, reticulate, white; I. g. pallida, standards and falls of the same colour; I. g. squalens, standards dull bronzy yellow, tinged with lilac, falls velvety-crimson and yellow. This is by far the handsomest of all the groups.

Abutilons.—Mother-plants of Abutilons, if these plants are used in bedding, should soon be placed in heat so as to afford cuttings, also India-rubber plants. In mild weather clean and air the stock of bedding-plants standing in pits and green-houses; and if mildew has appeared on any of them, do not delay to use flowers-of-sulphur.

Beds of Bulbs alone, and Biennials and Perennials Mixed.—Let the ground be stirred with the hand-fork, and vacancies filled up from the reserve-garden, and as in the case of Carnations, making the plants firm about the collar. If slugs are troublesome, sprinkle quicklime on the soil at sunset, and set traps for them.

Bedding Plants.—Seeds of the tuberous and fibrous-rooted Begonias may now be sown, in order to have strong plants for summer bedding. The seed of these can be purchased in distinct colours. When sowing the seed, carefully crock small pots, fill them with a mixture of finely-sifted loam, leaf-mould and sand, pressing the soil firmly, and sprinkling with a fine-rose watering-pot, then scatter the seed evenly over the surface, and leave uncovered; place a sheet of glass over the pots for protection. If stood in a moist place with a temperature of 65°, the seed will soon germinate. Sow seeds of the dwarf Antirrhinums, Yellow Prince, White Queen, and Crimson; these are excellent plants for bedding.

Alternantheras should be shaken out of the store pots, planted singly in a mixture of loam and leaf-mould, with a bottom-heat of 75°, slightly damped overhead, may soon root freely, and produce plenty of strong cuttings. Heliotropes, Fuchsias, Ivy-leaved Pelargoniums, &c., intended as specimen plants for beds should, if pot-bound, be given a liberal shift, placed in a humid atmosphere, tied neatly to stakes and exposed to light. Any of the flowering Pelargoniums, the leading shoots of which are not required for cuttings, should be pinched-back to make them break and form bushy plants.

Carnations.—The yellow-flowered and yellow-ground varieties that are of too delicate a constitution to withstand frost, but must be wintered in cold frames, should be lifted, and some fresh ashes and a good sprinkling of soot placed under them. This will prevent the ravages of slugs, and sweeten the atmosphere. Afford plenty of air to prevent them growing, and thoroughly harden them off before planting outside. Carnations in the open borders should be made firm in the ground, and any that may be affected by fungoid diseases, should be taken up entirely and burnt.

Hellebores, known as Lenten Lilies, are fast throwing up the flower-spikes; these should be dusted over with a mixture of soot and lime. This will prevent the slugs and mice eating the flowers, and act as a stimulant when washed into the soil by the rain.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Tomatos.—Strong plants grown from seeds sown in the autumn, and now occupying 6 or 7-inch pots, may be transferred to the pots in which they are to fruit, placing them in a warm house, where there is abundant light. The side-shoots, as they appear, should be removed, and the plants neatly staked. As the flowers open, let these be fertilised daily at an hour when the pollen is quite dry. Fruiting Tomato plants should be afforded manure-water frequently, or top-dressings of bone-meal or other artificial compounds may be substituted. The younger seedlings may be potted as they become fit, and more seeds sown. Challenger, Ham Green Favourite, Duke of York, and Frogmore Selected are excellent varieties for present sowing. Do not sow the seeds thickly, or let the seedlings become crowded, and stand the seed-pans on a shelf near the light in a warm house. The plants should be potted as soon as two or three leaves have been made. In potting Tomatos in this stage, use a light and fairly rich compost broken up into a fine state, and warmed previously to being made use of, chills being very detrimental to the well-being of the plant. Press the soil only moderately firm into the pots, so as to avoid injury to tender stems.

Later Peach-houses should be kept cool, letting them remain open at night as well as by day, this being very essential this mild year, for exposure to some degree of frost will act as a check on growth. The gardener should make every effort to finish the pruning and tying of all the trees in the first week of the present month before the buds move. Though trees in these houses may be dormant, and the buds may not be dropping, the trees will be much weakened if the soil is allowed to get dry, even in the winter.

Melons.—The earliest plants, if not already planted in the hot-beds, should soon be ready for planting, and provision should be made for doing so. A Melon-bed may be made over a heated chamber, or on an ordinary hot-bed. If the first crop is taken from pot-plants, these should likewise be got in readiness. The Melon likes good drainage, and loam of a heavy nature, and nothing more is necessary than a small quantity of lime, mixed with it. It is important that the hillocks, the bed, or the potful of soil, should be made firm at the time of planting, and allowed to get warm before the plants are put out. In planting do not break the root-mass, but press the soil close about it, and let the top of the ball be flush with the surface. Place a neat stake to each plant, reaching to the trellis. Let succession plants be potted or repotted, never letting them get pot-bound, and afford them a place in the fullest sunshine, and as near the glass as possible; therefore, an ordinary frame or brick-pit is the most suitable place for the young plants. Sow seeds at short intervals, using small 4-inch pots, filled with loam and sand, sowing one, or at the most two, seeds in each.

Late Grapes. — The bunches should now be removed from the Vines, with about 6 inches of wood attached, and placed in wine-bottles filled with clear water, and hung up by a bit of string passed round the neck, or stood slantingly on a rack, with the bunches neither touching each other or the bottles in which they are put. Any room in which a cool uniform degree of temperature can be obtained makes a suitable Grape-room. The ordinary fruit-room, unless it be large and dry, does not make the best Grape-room. It is very necessary to examine the bottles at short intervals, and to keep them nearly filled, to remove decaying berries, and to get rid of moisture by keeping quicklime in pails or boxes in the room. Be careful not to let dust enter the room. It is to be feared that Grapes will not keep satisfactorily this year, and a good deal of attention is sure to be required. The earlier that the late Vines are pruned, now that we have entered the second month, the better, no benefit accruing from further delay, and bleeding, the outcome of late pruning, will thus be averted. Keep the late Vines cool till starting time arrives, in the meantime cleaning the Vinery, renovating the borders, and generally following earlier directions for Vines about to be forced.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Souvenir de la Malmaison Carnations.—The strongest of the autumn-struck plants being now well rooted, may be shifted into 5 or 6-inch flower-pots, leaving the weaker and less-rooted plants to be repotted towards the end of the present month. Afford the plants a compost consisting of two parts good loam, neither too retentive nor too light, and one part leaf-soil, adding sufficient silver-sand to keep the whole porous. Afterwards let the plants stand as near the glass as possible, in a greenhouse or cold pit, affording them ventilation pretty freely when there is no frost.

Tree or Winter-flowering Carnations.—In order to have plants for flowering next winter, cuttings or pipings of these should now be inserted. As cuttings, choose young growths which spring from the stems of the old plants, neither too gross nor wiry, detaching them with the fingers, and consequently they will in each case be furnished with a heel, and having removed a few of the lower leaves, they are ready for insertion. As a soil in which to strike them, use three parts loam, one part leaf-soil, and plenty of silver-sand; fill some 4-inch pots with this, pressing it firmly, sprinkle some silver-sand on the surface, and dibble in eight or ten cuttings, taking care that the base of each rests on sand. Having afforded water, place the cutting-pots under a handlight or bell-glass, in a temperature of from 55° to 60°, and daily wipe the moisture from the inside of the bell-glasses. When all the cuttings in each pot have taken root, remove the pots from the cutting-frame to a cooler one, and having hardened them off a little, they may in a few days be potted in 3-inch pots, using this time rather more leaf-soil. When they are well rooted, remove them to a still cooler house or pit.

Fuchsias and Abutilons.—A few old plants of each of these may be placed in heat to provide an early batch of cuttings. Repot autumn-struck plants of the former as fast as the roots take full possession of the soil, and, if the object is to obtain specimen-plants, choose for that purpose plants which show promise of producing side-shoots from the top of the pot upwards. This does away with the necessity of stopping the leader, and allows the plant to attain its full height. Grow on in a house having a temperature of 50° to 55°, and considerable degree of humidity.

Show and Fancy Pelargoniums, and Cinerarias.—Keep a sharp out-look for aphis on these plants, employing Richards' XL-All Liquid upon their first appearance, repeating the operation if necessary till the plants are quite clean. Let these plants be grown in a cool, well-aired greenhouse or greenhouse-pit, affording them a minimum temperature of 45°. The Fancies, if there is the convenience, may be grown in a house slightly warmer. Cinerarias which are throwing up their flower-stems, may be assisted with applications of weak liquid-manure, particularly plants that are in comparatively small pots.

Clerodendron fallax, and Justicias.—As soon as strong cuttings of these plants can be obtained from the old plants started in moist heat, they should be inserted in sandy soil in small pots, and plunged in a propagating-frame. The first-named may also be increased from seed, which should be sown forthwith.

Gloxinias and Tuberous-rooted Begonias.—It is often found that some of the tubers of Gloxinias and Begonias have started prematurely, it is then the best course to shake the old soil from them and repot in quite small pots, and place them in a temperature of 55° to 60°, and later shifting them into larger pots. Such plants become drawn and leggy if they are kept back until the bulk of the plants are started into growth, but treated as described, they make early flowering plants.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener, Dropmore, Maidenhead.

Canker in Apple and Pear-trees.—A good remedy for canker in Apple and Pear-trees that are otherwise healthy, consists of scrubbing the infected parts with a little soft-soap and water, at a temperature of not less than 130°, and when dry applying a dressing of Stockholm-tar and tallow, brushing it well into the cankered parts with a half-worn-out painter's brush. To seven parts of Stockholm-tar add two parts of Russian tallow, and warm in an old saucepan, stirring it well till incorporated. This may be applied without the least injury to the bark at the present season.

The Blackberry.—The treatment accorded the Raspberry will in most particulars suit the Blackberry. Its fruits make an excellent preserve and jelly, and they may be used mixed with Apples in tarts. As with the Raspberry, its canes may be planted during the next few weeks, weather permitting, and thereby many waste spots may be made profitable that would be otherwise waste. The best results are obtained in rather light and stony soil of fair depth, with moist surroundings in the shape of springs or pools; and where such situations are obtainable, the plants may be allowed to grow in a somewhat natural manner, the more so as much pruning and tying is not being adapted to its requirements. There appears to be a good demand for fine Blackberries, as a Buckinghamshire market-grower a short time since assured me he could always find a ready sale for his Blackberries when put up in 1 lb. punnets, at 6*d*. per lb. This grower cultivates either a seedling or selected form of our British variety, Rubus fruticosus, on land similar to that described above. The plants produce long growths, which are allowed to arch over after one tie is afforded to a central stout stake at about 5 feet in height, growths from 12 feet to 15 feet or more being made, the points of which are allowed to bend over and touch the ground, where by pegging them down, roots are quickly formed, and the top furnishes eventually a strong young plant for removal to another position. The old canes are cut away annually, but other than the removal of the rooted points, no shortening of the young growth is permitted, and by this method wonderful crops are obtained. The varieties most grown in gardens are Rubus laciniatus, the Parsley-leaved Bramble, and the American-raised Wilson Junior. Both are strong-growers, and should be given the support of a trellis or stakes, as above, and treated similarly. The Wilson Junior especially should be planted in a warm situation, such as a bank or border sloping to the south. Digging among the plants should not be practised, but a slight surface-stirring and good mulching of rotten manure may now be applied as a winter-dressing.

Protecting the Fig.—In the event of severe frosts occurring, it will be advisable to have some material in readiness for the protection of out-of-door Fig-trees. For this purpose thatched hurdles, or strips of stout wood nailed together and similarly thatched, that may be stood just under the wall-coping to a yard from the wall at the base, will be suitable, to be removed when not frosty, as the trees are best if exposed in mild weather.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Winter-flowering Cattleyas and other Species.—Among these plants Cattleya Trianæi takes the first place, with C. quadricolor (chocoensis), and C. Percivaliana as useful companions. When the flower-buds are apparent in the sheath, the cultivator should afford them a more generous supply of water till the flowers expand, when, for the welfare of blooms and plant, a very restricted quantity is desirable; and this kind of treatment should continue until the new breaks have made considerable progress. In order that exhaustion should not occur, the flowers should be removed about ten or twelve days after the opening, for they will last as long in a cut state when placed in water as on the plants. C. Warneri and C. maxima commence to grow early in the new year, and it will be well to let the plants occupy a light position, and not to hasten growth unduly, or failures are almost sure to follow, loss of flowers being the least. A very limited supply of water should be afforded them, the time when and the quantity being determined by the condition of the pseudo-bulbs, whether shrivelled much or little. C. Luddemanniana, which we keep in the East-Indian-house the entire year, requires a severe course of resting to induce the plant to flower.

Winter-flowering Lælias and Others. — Those species which flower during our winter are mostly natives of Mexico, hence the term "Mexican Lælias" given to L. anceps and its white and other varieties, autumnalis, albida, Eyermanniana, purpuracea, and rubescens. Most of these having now finished flowering, they should have a decided rest before the work of next season commences. With this object in view, dryness at the root is essential; also dryness of the air, so long as the pseudo-bulbs are not dried so much as to cause shrivelling to an excessive degree. The first-named species and its varieties will, before long, begin rooting anew, and in their case a moister condition of the materials is desirable. L. majalis may even now be showing signs of activity; but disregarding this fact, the plants must be kept very dry, or they will be induced to grow prematurely, and without flowering. L. crispa in numerous instances will be in a forward state of growth, and so soon as new roots are detected, any top-dressing that is needed should be done, first picking out as much of the old material as possible. Water should be very sparingly applied, even after new material has been added, or the young growths will rot off; a light and warm position in the Cattleya-house should be selected for this species now that it is growing. L. pumila, præstans, and Dayana, which should be grown in a house having a few degrees less heat than the above, and where more shade is afforded during the summer, will now require careful treatment in the matter of water, to prevent the plants breaking into growth anew before they have recovered from the efforts of flowering. It is not advisable to allow the potting material to remain dry for any great length of time; still, it should not be thoroughly saturated.

Cœlogyne cristata is a most attractive, useful, and easily-cultivated Indian Orchid, which any gardener might cultivate and flower successfully, providing a glass structure exists in which a temperature of about 50° may be maintained during the winter, and shade afforded in summer. The plant is now in bloom, and preparations for the next season of flowering must be taken into consideration. No water having been supplied since some time previous to the plant's flowering, immediately after the racemes are removed the soil should receive a thorough application of rain-water, and be allowed to become moderately dry before affording another, and which need not be so liberal.

THE KITCHEN GARDEN

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Mushrooms.—In order to keep up a regular supply of Mushrooms, it is necessary that a bed or beds be made up at intervals of four weeks. In the making of Mushroom-beds, only sweet and well-prepared materials should be employed, and these should contain a good proportion of the dung of corn-fed horses, together with the shorter strawy litter, and a small quantity both of fresh loam and cow-dung. It is the rule to collect daily what stable-manure there is available on a private place, and throw this into a heap, and when enough to form a bed or two beds, to spread it out a foot thick on the floor of an open shed for a week to let it part with its rankest heat, then throw it again into a heap, and turn it once or twice, and in about one week it will be fit for making into a bed. Let this be put firmly together when the heat, as tested by the thermometer, stands at about 80° or 85°; insert pieces of the spawn, in pieces the size of a hen's egg, at intervals of a foot, all over the bed, and "case" the surface with sifted loam. Some gardeners leave the final covering for a week; but if there is no risk of the heat becoming too excessive, the beds may be finished when spawned. Keep the temperature of the structure from 55° to 60°, and in about six weeks Mushrooms should be springing up all over the bed. A slight covering of hay will help to retain heat and moisture in the beds, and hasten the appearance of the crop; but this must be lightly put on, and should be once a week lifted up. The thickness of a bed in the Mushroom-house proper need not exceed 14 inches. Ascertain if beds in bearing are suffering from lack of moisture, and when moisture is required, let it be afforded by means of a fine-rose watering-can at a temperature of 70° to 75°.

Hints on current operations.—The spell of frosty weather has rendered the wheeling of manure on to the vegetable quarters an easy matter. If a piece of ground is not cleared of its last crop, wheel the manure to a spot adjacent to it. When the frost disappears, the main Onion quarter should be partly got in readiness for sowing at a later date. The land for this crop should be heavily manured, and brought to a fine tilth; and if the maggot was troublesome last year, afford a heavy dressing of fresh soot and quick-lime just before the drills are opened. In the meantime, the dressing of manure should suffice. Onion-land needs deep digging, but this is best performed in November, and it is very necessary that it should be consolidated before the sowing is made, and that cannot be the case if it have to be trenched at this date, although land simply dug can be made firm enough. Late keepers are James', Bedfordshire Champion, a very good and reliable variety, and both grow large enough for ordinary purposes; and Giant Zittauer; and, for early drawing, the silvery-looking Queen.

THE APIARY.

By EXPERT.

Candy.—As a further help to candy-makers, I beg to add that we boil our candy for ten minutes after it has reached the boiling-point, and by strict attention to details get our cakes of just that nice firmness requisite to stand a two-mile shake up to the out-apiary without collapsing into an unstable mass, yet soft enough to allow the finger to be easily pressed into the cakes, or to melt in one's mouth without mastication or sucking. When removed from the fire, the saucepan is placed in a vessel of cold water, the water reaching to the height of the liquid candy inside. This is left a few minutes while the moulds are being lined with paper to receive it when ready. I then commence stirring until the contents of saucepan assume a consistency which just allows it to run into the mould before the mixture stiffens. Beginners are apt to handle their bees too frequently; and it should be remembered that disturbance causes abnormal consumption of food, with the consequent distention of the viscera, in seasons not permitting of a cleansing flight. Draught or damp also lead to the same effect, ending in so-called dysentery. Many old-fashioned bee-keepers feed all winter, causing excitement and other evils. If feeding be absolutely necessary, it should be done by giving a full comb of food from another stock, or a cake of soft candy. Too much unsealed honey, or badly-made food which ferments in the cells, unwholesome natural food, or even an undue quantity of pollen, all lead to the evils of bowel-distention and death. Prevention is better than cure in these cases; therefore, attention should be given at the proper time, that all food may be sealed over before bees settle down for winter. A few days' neglect in failing to examine doorways in midwinter sometimes ends in the suffocation of the stock. Strong colonies may have their doorways left open 6 or more inches. Weak stocks, or any where signs of robbing are seen, should have the entrances covered with perforated zinc, in which a doorway about an inch long is cut.

Damp.—This may arise from a leaky roof, or one that is not freely ventilated; or it may be caused by floor-boards resting too near the damp ground. Hives without legs should always be raised a foot or so in winter.

THE ROSARY.

ROSE "PAPA LAMBERT."

The last issue of the *Rosen Zeitung* contains a figure of "Papa Lambert," a H. T. with rich rose-coloured flowers. It originated from the pollination of White Lady H. T. by Marie Baumann H. P. together with pollen of Oxar Cordel. Whether both putative pollen parents exercised any influence is surely doubtful.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR FEBRUARY.

SATURDAY,	FEB. 4	Northamptonshire Horticultural Society's Meeting. Isle of Wight Horticultural Improvement Society's Meeting.
MONDAY,	FEB. 6	National Chrysanthemum Society's Annual Meeting, at the Royal Aquarium, at 7 P.M.
TUESDAY,	FEB. 7	Scottish Horticultural Association, Meeting. National Amateur Gardeners' Association, Meeting. Loughborough Gardeners' Meeting. Bolton Horticultural and Chrysanthemum Society's Meeting.
WEDNESDAY,	FEB. 8	—Renfrew Gardeners' Meeting.
THURSDAY,	FEB. 9	Manchester Horticultural Improvement Society's Meeting.
SATURDAY,	FEB. 11	Royal Botanic, General Meeting. Dutch Gardeners' Society's Meeting at Richmond.
MONDAY,	FEB. 13	United Horticultural Benevolent and Provident Society's Committee Meeting.
TUESDAY,	FEB. 14	Royal Horticultural Society's Committees. National Rose Society's Committee Meeting. Royal Horticultural Society of Ireland, Meeting.
THURSDAY,	FEB. 16	—Linnean Society, Meeting.
FRIDAY,	FEB. 17	Royal Gardeners' Orphan Fund: Annual Meeting and Election of Pensioners, at Anderton's Hotel, Fleet Street, E.C., at 3 P.M.
MONDAY,	FEB. 20	Shirley Gardeners' and Amateurs' Improvement Association, Meeting.
TUESDAY,	FEB. 21	—Loughborough Gardeners' Meeting.
WEDNESDAY,	FEB. 22	—Renfrew Gardeners' Meeting.
THURSDAY,	FEB. 23	Annual General Meeting of the Kew Guild, in the Garden Library, at 8 P.M.
SATURDAY,	FEB. 25	Royal Botanic Society, Meeting. Dutch Gardeners' Society's Meeting at Richmond.
TUESDAY,	FEB. 28	Royal Horticultural Society's Committees.

SALES FOR THE ENSUING WEEK.

MONDAY,	FEB. 6	Roses, Gloxinias, Spiræas, Pæonies, &c., at Protheroe & Morris' Rooms.
TUESDAY,	FEB. 7	Hardy Perennials, Carnations, Dahlias, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	FEB. 8	Japanese Lilies, Iris, New Violets, Tuberoses, &c., at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 9	Hardy Border Bulbs, and Plants in variety, at Protheroe & Morris' Rooms.
FRIDAY,	FEB. 10	Anemones, Roses, Carnations, &c., at Protheroe & Morris' Rooms. Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—39·2°.

ACTUAL TEMPERATURES:—

LONDON.—*February* 1 (6 P.M.): Max., 41°; Min., 35°.

PROVINCES.—*February* 1 (6 P.M.): Max., 42°, Scilly; Min., 35°, E. Scotland.

Slight frost, easterly winds, fine.

Cross-Breeding.

IN looking forward to the arrangements for the present year at home and abroad, there is nothing of so much intrinsic importance as the Conference on Hybridisation, to be held under the auspices of the Royal Horticultural Society in July next. We have already published the details of the programme so far as they can be arranged so long beforehand. They comprise two meetings—one at Chiswick, the other in the Lindley Library, or, as we suppose, in the Drill Hall, if the exhibits are very numerous. At these meetings points of great scientific interest and practical importance will be discussed. It is not probable that the programme as printed can be carried out in its entirety, but that is of the less consequence as the papers will be printed at length in the Society's *Journal*.

It rests with the exhibitors to render their part of the work a success; and considering the fact that the progress of horticulture of late years has depended so greatly on the practice of cross-breeding, we cannot doubt but that the exhibition will be one of the greatest interest.

New plants, in the sense of new introductions, have of late years fallen off, except in the one case of Orchids. New plants raised by the skill of the experimental gardener have vastly increased, and wonderfully added to the beauty and interest of our gardens. Varieties and species and genera only differ in degree one from another, and the limitation of the groups in question is very much a subject of personal judgment. Hence the terms "cross-breeding" and "hybridisation" are often used indiscriminately, though, as a rule, the first term applies to the intercrossing of varieties, the second to that of species. When the cross is effected between species belonging to what are considered two genera, the result is a bigener or bigeneric hybrid.

In the old days, when "species" were looked on as something sacrosanct, some good people deemed it presumptuous, or almost impious, to attempt to interfere with what they considered was the order of Nature. The naturalists of the day naturally also objected strongly to the procedures of the hybridists, which broke down the barriers between species and species, and upset the carefully-framed systems of classification—so much the worse for the system, as we now think. Dean HERBERT it was who combated the narrow views of those who objected to hybridisation on the score of presumption. He it was who pointed out that so far from being presumptuous, the hybridisers were really extending, deepening, and making more widely-known the limitless marvels of creation. He had no difficulty in showing that the truest religious feeling in this matter was with the experimenters. What is more to our purpose, he showed that hybridisation occurs naturally. He first of all suspected that certain wild forms of Narcissi were of hybrid origin, and then he proved the correctness of his suspicions by crossing the species one with the other, and obtaining the same hybrid by artificial means. When it was thus shown that hybrids occurred in Nature, and further, that they were by no means always sterile, but frequently fertile, there was an end of the fictitious religious difficulty.

Among Orchids, REICHENBACH described very many as hybrids, because, in his judgment, they combined the characteristics of two species known to grow in the same vicinity.

Messrs. VEITCH and other experimenters have in many cases proved the correctness of REICHENBACH'S conclusions, by producing in their establishments the self-same hybrid that was at first only known in the natural condition.

HERBERT anticipated DARWIN in many of his speculations, but his work is not sufficiently appreciated even now. KOLREUTER, and GAERTNER, and SPRENGEL, are known to our botanical students, nourished on pabulum made in Germany; and far be it from us to suggest, even remotely, the belittling of these great pioneers. What we want to do is, to direct the attention of the students to the work of our own countryman, HERBERT, as set forth in the *Journal of the Royal Horticultural Society*, and elsewhere. If those works are carefully considered by our students, they will, we think, be somewhat astonished at the way in which HERBERT anticipated the knowledge of the present day.

THOMAS ANDREW KNIGHT, so long the President of the Society, was another hybridiser who worked with a purpose: his aim was mainly practical, and some Apples, such as Downton Pippin and others, remain to this day, as does Knight's Monarch Pear; while his Marrow Pea may be taken as the origin of many of our best modern varieties.

Before his time, PHILIP MILLER was at work crossing Tulips at Chelsea, and THOMAS FAIRCHILD of Hoxton has the credit of raising the very first artificially-produced hybrid known, in the shape of a mule Pink, produced by crossing D. barbatus and D. caryophyllus.

Coming now to our own times, is there any more remarkable experiment, or series of experiments, on record, than those which have secured to us the possession of the tuberous Begonia! So great is the change brought about by JOHN LAING and VICTOR LEMOINE, that a new genus—or, shall we say, a group, equal in value to a genus—has been framed to receive them, and the name Lemoinea × assigned to it.

Without doing more on this occasion than make passing allusion to the now numerous bigeneric hybrids among Orchids, we may mention as striking illustrations of the results of cross-breeding, the magnificent series of greenhouse Rhododendrons issued by Messrs. VEITCH, and the fine series of Clematis sent out by Messrs. JACKMAN.

Among the so-called florists' flowers, cross-breeding of varieties has given us the astonishing Dahlias and Cinerarias of the present day, and the still more remarkable Chrysanthemums.

It is needless to cite other illustrations, such as might be given by the score; it is enough to say that progress in this department of horticulture has been more marked than in any other. We can indeed, hardly conceive a limit to our progress in this matter, for, if we find ourselves baulked in one direction, there are endless other avenues open to us. It is confidently expected that the Hybridisation Conference will show this, and especially that it will be the means of guiding and directing experiment in the most likely channels, so as to avoid waste of time and energy, prevent the pursuit of phantasms, and tend to the development of degrees of beauty and utility now undreamt of.

LINNEAN SOCIETY, JAN. 19: WILLIAM CARRUTHERS, F.R.S., Vice-President, in the Chair.—Mr. A. J. MASLEN read a paper on "Lepidostrobus." After remarking that the late Professor WILLIAMSON'S collection of fossil-plants in the Natural History Museum contained a number of slides which he had associated with Lepidostrobus, but which could not be referred with certainty to the particular vegetative organs to which they belonged, while it was difficult also to refer isolated sections of the same type of Strobilus to one another, he explained that the present paper gave the result of a re-examination of WILLIAMSON'S slides of Lepidostrobus, undertaken at the suggestion of Dr. D. H. SCOTT. His object and endeavour had been to make out, if possible, at least some distinct forms; but he had found great difficulty in determining whether the observed structural differences in isolated sections were really of specific value or not. He considered it safer to adopt WILLIAMSON'S Lepidostrobus Oldhami for a common type of structure, and by comparison to describe three marked variations (α, β, and γ). A clearly distinct form he described as a new species, under the name Lepidostrobus foliaceus. A discussion followed, in which the Chairman, Dr. D. H. SCOTT and Mr. W. WORSDELL took part.

ORDER OF ST. MICHAEL AND ST. GEORGE.—At Osborne, on Monday last, January 30, the QUEEN conferred the honour of knighthood on WILLIAM TURNER THISELTON DYER, Esq., Director of the Royal Botanic Gardens, Kew, in recognition of services rendered to Colonial Governments. The new knight was then invested with the Riband and Badge, and the Star of his dignity in the Order was affixed to his left breast by HER MAJESTY.

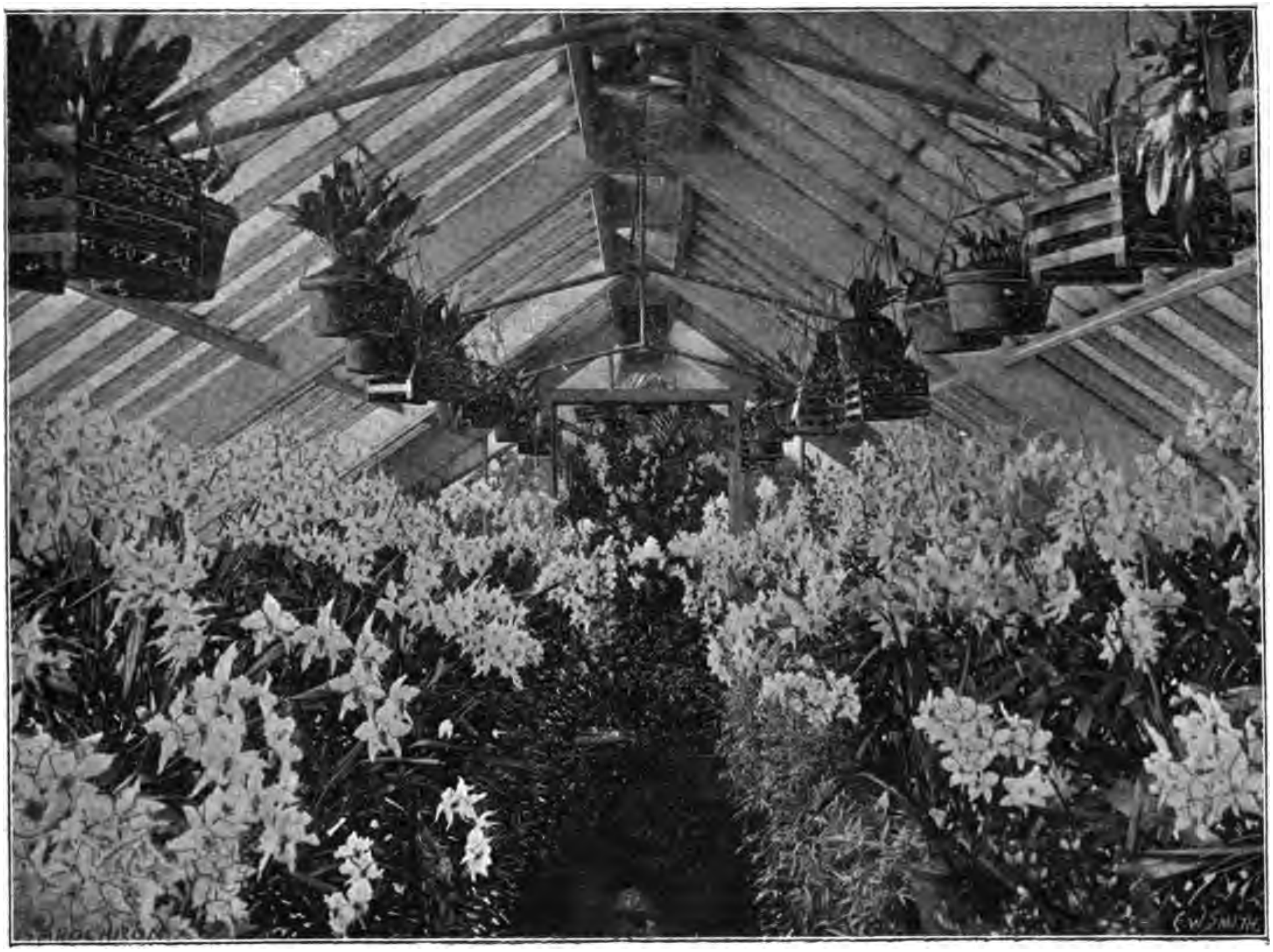


FIG. 24.—ODONTOGLOSSUM-HOUSE IN THE GARDENS AT FREELAND, PERTHSHIRE. (SEE P. 66.)

ROYAL BOTANIC SOCIETY.—A course of lectures and demonstrations, as has been previously stated, on the subject of seed-testing and seed-control, by Mr. D. FINLAYSON, is being delivered in the Museum at the Society's Gardens on Monday afternoons until March 21, the first of the series having been given on Monday afternoon, Jan. 23, at 3.30, for the benefit of students of agriculture, horticulture, landscape gardening, and of botany generally. The second of the series was given on Jan. 30, dealing with the effects of age of seed, suitable soils, change of seed and the reason for it, quantity of seed per acre, &c. The subject chosen was Grass-seeds, Alopecurus pratensis, Dactylis glomerata, and Festuca elatior. Impurities were specified and described. On Monday, 6th inst., other species of grasses will be taken and dealt with similarly.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are desired to correct a misstatement made in our last issue in regard to the date of the annual dinner, which was announced for July 28 instead of June 28. The secretary desires us to state that the following sums have been given towards the completion of the Victorian Era Fund:—Mr. W. G. MONRO an additional £50, Mr. OSMAN £10, and Mr. E. C. MOTT £5 5s.

THE CHELSEA GARDEN.—We are glad to find the *British Medical Journal* and the *Pharmaceutical Journal*, whose opinions on such a matter are necessarily weighty, endorsing our remarks as to the desirability of providing for due instruction in systematic botany.

ROYAL GARDENERS' ORPHAN FUND.—The annual general meeting of the subscribers to this Fund will be held at Anderton's Hotel, Fleet Street, London, E.C., on Friday, February 17 next, for the purpose of receiving the report of the committee, and the accounts for the past year; to elect officers for the ensuing year; to elect nine children to the benefits of the Fund; and to make the following alterations in the Rules, viz.:—Rule V. Line four, after the word "purpose," to omit the words, "All donations and legacies;" and to insert the following: "All receipts, except legacies and donations, specially given as such for investment, shall be considered as subscriptions, and be available for current expenditure. All legacies and special donations." Rule XI. Line five, after the word "require," to make the following addition:—"Not more than two children of the same family can be in receipt of the benefits of the Fund at the same time." The chair will be taken at 3 o'clock. The poll will close at 4.30 P.M., after which no votes will be received. The voting-papers have all been issued, any subscriber not having received one is requested to communicate with the Secretary. By order, A. F. BARRON, Secretary.

SCIENCE TEACHING IN HORTICULTURE.—A class for instruction in the principles of horticulture will be held by Mr. WILFRED MARK WEBB, F.L.S., at 2, The Broadway, Hammersmith, on Monday evenings, at 7.30 P.M., commencing on Monday, February 6, the fee being 10s. for the ten lectures (including any extra meetings found necessary as the time for the holding of the Royal Horticultural Society's examination approaches). Application should be made to the lecturer at the above-mentioned address.

Mr. J. G. Baker.—On the occasion of the retirement of this gentleman from the post of Curator of the Herbarium at Kew, his old colleagues, the members of the staff, presented him with an address expressive of their affectionate respect. A representation of the elegant Bromeliad, called Bakeria tillandsioides, drawn by Miss Smith, the botanical artist, served to frame the address. The signatures were confined to permanent members of the staff and to one or two regular visitors to the Herbarium. Had it been otherwise many others would have been proud and pleased to have had the opportunity of adding their tribute of respect and gratitude to one who has done so much for botany and gardening.

Chambre Syndicale de Gand.—On Sunday, February 5, at 2 P.M., a banquet will be offered at the Hôtel de la Poste, Ghent, to MM. E. Bedinghaus, Fr. Crépin, Rom. De Smet, A. Hoste, J. Hye de Crom, P. Nicaise, E. Pynaert, H. Van Hulle, and Ch. Vuylsteke, all of whom received honours during the year 1898, for their services to horticulture.

"Gardening for All."—A copy of the second edition of this useful little book, *Gardening for All*, has been sent to the Queen by the author, Mr. J. Udale, of Droitwich, the gardening instructor for Worcestershire. Mr. Udale was graciously thanked by Her Majesty, through the Master of the Household, for his present.

The Surveyors' Institution.—The next ordinary general meeting will be held on Monday, February 6, 1899, when the adjourned discussion on the paper read by Mr. Wm. Weaver (Fellow) at the meeting of December 12, 1898, entitled "The London Building Act, 1894, and the Official Supervision of Buildings," will be resumed. The chair will be taken at 8 o'clock. Members who are Graduates of any of the recognised Universities of the United Kingdom are requested to intimate the fact to the Secretary of the Institution, in order that the same may be indicated in the next issue of the list of members.

Plums from the Cape.—An admittedly early (if small) consignment of fruit has reached us, per a "Union" steamship, from the Cape; it consisted of first-class Plums, and the import manager, in advising us of the matter says:—"The steamer brought eight boxes of Plums, twenty-four Plums in each box; these were all in excellent condition, and were considered to be the best Plums ever brought from the colony. They were sold privately at Covent Garden, and realised a very high price." A very good start for the season.

Pharmaceutical Students working in London are, says the *Pharmaceutical Journal*, favoured by the addition of a new feature to the Museum at 17, Bloomsbury Square, in the shape of a Wardian-case containing living medicinal plants. The idea—originating with the Curator, Mr. E. M. Holmes—is that an additional interest will be imparted to the study of vegetable materia medica if as many as possible of the plants yielding medicinal products can be seen in the living condition by students. The first lot of specimens exhibited includes Eucalyptus Globulus (Myrtaceæ), with flowers and flower-buds gathered at Cannes, and sent by Mr. R. Goodwin Mumbray of Kew; Smilax aspera (Liliaceæ), the root of which is used in Italy in the same way as Sarsaparilla, also gathered at Cannes, and gathered by Mr. Mumbray; and Hamamelis virginica (Hamamelidaceæ), from the Cambridge Botanic Garden.

New York Botanic Garden.—On January 3, a beginning was made with the range of glass-houses to be erected in the garden. The illustration given in *American Gardening* shows a glass and iron, dome-shaped structure in the middle, with a wing on each side terminating in a large pavilion. The garden occupies an area of 250 acres. The Director in chief is Dr. N. L. Britton. We tender our respectful congratulations to the citizens of New York, and specially to the Torrey Botanical Club, and to the Director, on the prospect before them of a botanic garden worthy of the nation, and which cannot fail to be of the greatest service to botany and horticulture.

Proposed Testimonial to Mr. Turton.—We understand that it is proposed to present Mr. T. Turton, who, for a period of twenty years, was gardener at Maiden Erlegh, near Reading, and now fills a similar post at Sherborne Castle, Dorset, with a testimonial, in recognition of his services to horticulture in the district. The following gardeners and others have consented to serve on the Committee:—Mr. J. W. McHattie, Mr. G. Stanton, Mr. J. Tegg, Mr. T. Neve, Mr. F. Bright, Mr. G. Trinder, Mr. J. Bowerman, Mr. A. Dean, Mr. W. Heath, Mr. J. Hudson, Mr. F. Cole, Mr. J. Coombes, Mr. W. Lees, Mr. J. Woolford, Mr. J. Martin, treasurer, and Mr. J. Pound, hon. sec., who will be pleased to receive subscriptions; or they may be forwarded direct to Mr. J. Pound, hon. secretary, 47, Donnington Road, Reading. Those who feel disposed to subscribe, must do so before February 11, on which day it is proposed to close the fund.

Open Spaces.—There has for some time past, we believe, been some friction between local and municipal authorities as to the keeping up of small open spaces, and to set the matter at rest and on a satisfactory basis, a conference was held on the 26th ult. representative of the London County Council and the local governing bodies of London, to consider the whole matter. A resolution was ultimately passed declaring that the control of such spaces should be undertaken by the sanitary authorities for the various districts, the cost being met by annual payment from the Council. It will be necessary, we suppose, to lay down rules for the guidance of the "authority," else the proposed new order of things may not prove the success it is designed to be.

Flowers and Vegetables in Tibet.—Messrs. James Carter & Co. write from 237, High Holborn:—"Although many parts of this enormous Central Asian territory have not yet been trodden by Europeans, it may interest you to know that we have a lady customer at Yatong—the only British resident, we believe, in that city—who possesses a garden and grows vegetables and flowers. Her communications reach us with regularity *viâ* Darjiling. Quite recently we have received a report upon the value and adaptability of these products in that climate, 10,000 feet above the level of the sea, where snow falls sometimes in May, and begins again in October. Amongst the information given, we are told that Tomatos produce flowers but no fruit, Onions decline to form a bulb; Cabbage, Carrot, Turnip, and Mustard-and-Cress are excellent. Peas are good at certain times. Nearly all our common garden flowers proved a success."

When is a Gardener not a Hired Servant?—Important License Case. A prosecution, instituted by the Inland Revenue authorities at Manchester last week, has raised the question, whether or not, a gardener employed by a nurseryman to do work in a private garden, is a male servant for which a licence should be held by the nurseryman. The defence was that the agreement between the defendant (nurseryman) and Mr. Estcourt, the proprietor of the garden, was of the nature of a contract to do work required upon a certain area. The defendant was not required to complete the work in a given time, or to supply only a particular individual to execute it, therefore he could not be held liable under the Act. As a matter of fact also, the workman had not worked a full day at Mr. Estcourt's garden. The stipendiary magistrate found that defendant was liable for the licence, and inflicted a nominal fine of 5s., and costs. Leave was granted to state a case for appeal; and it is hardly likely that nurserymen will submit to this new item of taxation until a decision has been obtained from the highest courts.

AMERICAN NOTES.

THIRTY THOUSAND DOLLARS FOR A NEW CARNATION!

When the late Mr. Bennett sold the Rose Her Majesty to an American for 10,000 dollars it was thought that the price paid was phenomenal, and would stand as a record-breaker for generations. During the past week, however, a new Carnation, named Mrs. Thomas W. Lawson, raised by Mr. Peter Fisher, of Ellis, Mass. (a very intelligent Scotsman, who has already introduced some good novelties in Carnations), was sold to Mr. Thomas W. Lawson, a well-known Boston banker, for 30,000 dollars. The Carnation in question was named in honour of Mr. Lawson's wife, and several offers had been made for the stock of the plant by New York and Chicago magnates. To show that Boston could appreciate and pay for a good thing as well as her more populous if less refined sister, Mr. Lawson made his magnificent offer, which was accepted. The new Carnation in question was raised from a batch of seedlings four years ago by Mr. Fisher; he has worked up a stock of 8000 plants during that time, and the flowers bring a higher price than any other Carnation on the market, bringing three dollars per dozen at retail, while the average varieties net only from fifty cents to one and a half dollars per dozen. The flower is of a rich, dark-pink colour, calyx very stout, and stem very long and stiff; it has secured Certificates, Silver Cups, and Silver Medals wherever exhibited. Mrs. Lawson is a free and persistent bloomer, and has created a greater stir than any other Carnation raised here. It is not yet known what Mr. Lawson will do with his new purchase; it was Mr. Fisher's intention to hold it until 1900 ere disseminating it, but the new owner may decide to place it on the market, and will unquestionably get most of his purchase-money back through sales of rooted cuttings, besides an immense amount of gratuitous advertising throughout the length and breadth of the country. If 30,000 dollars can be had for a new Carnation, what may not the raiser of a blue Rose or Chrysanthemum hope to get in the future? *W. N. Craig, Taunton, Mass., U.S.A., January* 22, 1899.

NOTES FOR NOVICES.—II.

Potting.—Unless an exception be made in the case of watering, it may be doubted if there is any operation in the whole range of gardening which necessitates more practical experience for its successful prosecution than does potting. To attempt to instruct a pupil in the best method of potting an Orchid, or any other plant, by books alone, would therefore be absurd. But although there are considerable variations in the method of potting, according to circumstances, the diverse nature of particular plants, and the purpose for which they are grown, yet, just as in the case of digging, there are certain general principles which are common to all cases. The pupil needs to have a good grasp of these principles, so as to be able to apply them properly, and adapt his methods of procedure in accordance with them, and in conformity with the particular requirements of the case.

The first thing to remember is the very artificial nature of the procedure. We do not grow plants so much for their own benefit, as to supply our own requirements. Can we imagine any plant liking to have its roots cribbed, cabined, and confined within the limits of an earthen pot. As growth in pots is necessarily an artificial procedure, and one very likely, if ill done, to bring about injury to the plant, it is surely our duty to avoid this, by making the plant as comfortable as possible under the circumstances. The plant is a living being, and demands from us in its degree that consideration which it is our duty to extend to our fellow creatures of all descriptions. Some may think this rather far-fetched, but it is true in substance and in practice; the more nearly and completely we can act up to it the better in all cases will our cultivation be.

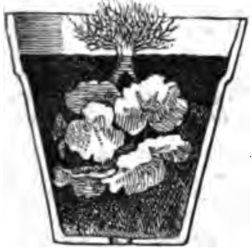


Fig. 25.—FIRST ATTEMPT BY YOUNGSTER AT 10 YEARS OF AGE.

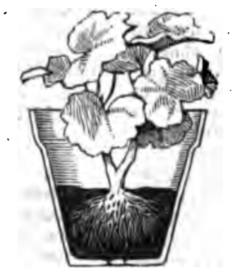


Fig. 26.—FINDS THE RIGHT END—AT 12 YEARS

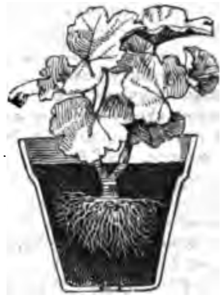


Fig. 27.—WET FEET—15 YEARS.

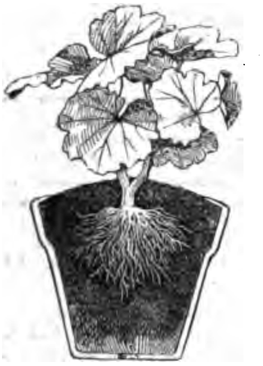


Fig. 28.—DRY FEET—16 YEARS.

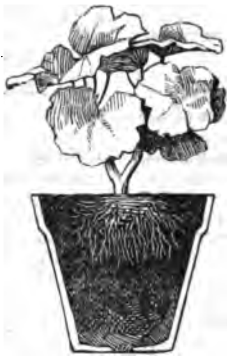


Fig. 29.—HONEST MEASURE—17 YEARS.

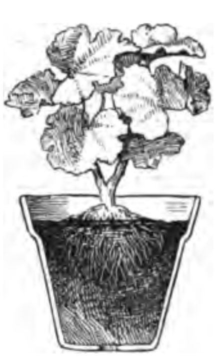


Fig. 30.—PENURIOUS—18 YEARS.

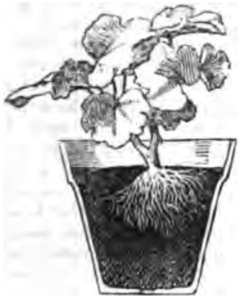


Fig. 31.—IN A HURRY—19 YEARS.

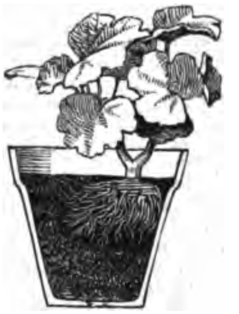


Fig. 32.—CARELESS—20 YEARS.

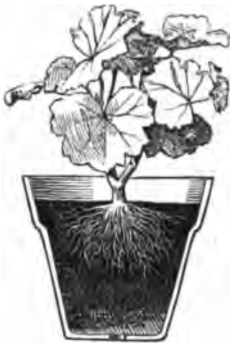


Fig. 33.—IN BUSINESS FOR HIMSELF—21 YEARS.

RIGHT AND WRONG METHODS OF POTTING.

Culture in pots, then, resolves itself in the first instance into the best means for promoting the growth and the action of roots under particular conditions. The conditions are the same as were alluded to in a previous note when the question of digging was under consideration. The roots are alive—very much so; they are so sensitive as to be almost intelligent, and they are endowed with a considerable amount of locomotion, which enables them to thread their way between the particles of soil in their search for air and water. Light is of little use to them directly, but a certain degree of heat is absolutely necessary to their welfare. These conditions are satisfied by careful potting. The admixture of loam, leaf-mould, or peat and pure sand, in varying proportions, forms the basis of most potting composts, and supplies the requirements of the plants. The soil is made permeable enough to permit the free access of air, which is essential if the plant is not to be suffocated. Provision is also made for the passage of water which must be provided, or the plant will die of inanition. Hence, the directions given to employ none but clean pots, so that nothing may obstruct the passage of air or watery vapour, and hence, also, the care required to crock the pots properly, and to obviate anything like stagnant water, which, as has been said, kills the plant by suffocating it. The water, even when it does not run away freely, is always passing by evaporation. That evaporation, unless means be taken to obviate it, is necessarily attended with a loss of heat, the unfortunate plant gets a chill—takes cold, in fact. We may see the consequences of this in arrested growth, yellow colour of the leaves, and other evidences of disturbed health.

The soil-food is supplied by the compost, the loam furnishes the potash, the phosphates and the lime that are required; the leaf-mould yields nitrates and perhaps carbonic acid, though the greater part of the carbon in plants is derived directly from the air by the agency of the leaves. It is easy to add to the soil food by the occasional application of liquid-manure after the potting has been accomplished, or infinitessimal quantities of sulphate of ammonia, nitrate of soda, potash, or phosphate of lime may be used singly or in combination with the potting-soil. Preferably, these ingredients may be used as a top-dressing subsequently, but some gardeners mix them with the potting-soil; or they may be inserted in the form of little capsules, as in the method employed by M. Georges Truffaut, the contents of the capsule being varied according to the plant to be cultivated. The mechanical texture of the soil, whilst fulfilling these requirements, also secures a free passage of the rootlets in all directions, so that they may thoroughly permeate the soil and reach the sides of the pot, where the circulation of air and moisture is freest.

In gardening books directions are given to pot firmly or moderately, to use small-sized pots to begin with, and to shift the plant when necessary into other pots not much larger than the original one. In other cases large shifts are prescribed. These and similar directions have principally reference to the nature of the roots, and to the purpose for which the plant is grown. The fine, hair-like, spreading roots of a Heath, for instance, require a different style of potting from that required by the thick, fleshy roots of a bulbous plant, which go straight downward. The creeping roots of an Orchid, with their spongy coat, full of air, and their green tips, indicate the necessity for allowing the freest access of air, and in this case even of light. When a plant is required to grow freely, its roots must not be allowed to become too densely matted, or they will strangle one another. They will become spirally twisted, and when the shift is made into another pot, or into the open ground, the plant leads a miserable existence for a time, and succumbs to the first strain. But there are frequent cases where it is more convenient to us to keep the plants in small pots, and to restrict the natural growth of the roots; and there are cases where a plant flowers all the sooner, and all the better for being "pot-bound." Experience alone can teach the way of applying the general principles before mentioned to these particular cases, but in no case is it judicious to bury the "collar" too deeply, or to suffer the soil to become hardened or "baked," as it may do if the proper texture of the soil is not attended to, and if water be improperly administered.

As a rule, the best time for potting is in spring, just as growth is beginning to manifest itself. If done later, when growth is in full activity, growth is checked, in the same way as it is in the case of root-pruning. This arrest may in some cases be desirable, and tend to induce the production of flowers.

The soil used for potting should always be approximately of the same temperature as the air. As potting is usually done under cover, this requirement is easily fulfilled, and the requisite bottom heat is readily supplied in the plant-houses.

Out-of-doors, it is often advisable to plunge the newly-potted plants into a bed of coal-ashes, or to sink them in the border, with a view to equalise the temperature and moisture, and to obviate undue evaporation from the pot, and consequent chill.

Other practical hints may be derived from an inspection of our illustrations (figs. 25—33), copied from a volume of *American Gardening*. *S. Retsam.*

HOME CORRESPONDENCE.

A WINTER FLORAL TREAT.—On January 17, I took advantage of the invitation given in the *Gardeners' Chronicle* by Messrs. Sutton & Sons, to call and see their show of Cyclamens and Primulas, and I must certainly congratulate them on such a fine display. There were from 2,000 to 3,000 Cyclamens in full bloom, in many shades of colour, and the beautiful mottled foliage was quite a feature. Among the varieties that took my special attention were Salmon

Queen, Vulcan, with dark crimson flowers; the Giant White, and some with flowers of several shades of deep purple. Very interesting were some French plumose varieties, grown for hybridising purposes. The Primulas are very interesting in shades of white, crimson, purple, and blue, both double and single-flowered, but these latter were, as yet, hardly at their best. *R. M., Newbury.*

BEGONIA GLOIRE DE LORRAINE.—Replying to Mr. F. W. Burbidge, I may say that this beautiful Begonia was raised by Messrs. V. Lemoine & Sons, of Nancy. I find in their Catalogue they state that it is a hybrid between B. socotrana and B. Dregei. It received a First-class Certificate from the Royal Horticultural Society in 1893, but it was some time after this date that it became generally known. It is remarkable that a plant capable of giving such an abundance of bloom with little trouble should have proved a failure with so many growers. Upon recommending it to a French nurseryman, I was told it was of no use whatever in France. However, on seeing a good batch of plants in flower, he was induced to try it, and has since bought some hundreds. I find it has also been taken up and grown successfully by some American nurserymen. Although it is quite the exception for this Begonia to produce female flowers, I have found a number on different occasions; but although it has been attempted to fertilise them, I have never seen good seeds. The yellow anthers are very conspicuous, but I have never been able to discover any real pollen. I have seen the plant at Chiswick with the seed-vessel (referred to by "A. D."), which has all the appearance of being fertile, but judging from my own experience, I am afraid it will prove abortive. *A. Hemsley.*

THE CURRENT YEAR'S ONION CROP.—The recent heavy rainfall will no doubt cause some delay in preparing the ground for seed sowing, &c. I would suggest, therefore, the necessity to forward such vegetables as early Peas, Broad Beans, &c., by sowing enough of these in pots to make a first batch, and to plant them out afterwards, when danger from frost has passed. But my particular reason for writing this note has reference especially to the Onion crop. Onions are in request all the year round, and great inconvenience may be caused by loss of crop through the attack of the Onion-fly. The seed should be sown now in boxes, and afterwards placed in a temperature of 60° until they have germinated; the boxes should then be shifted into a house or pit a few degrees cooler. Keep them near the glass, and gradually harden off ready for planting out into well-prepared ground towards the end of April. The plants will not feel the check, but start right away, and make nice bulbs by the end of the season, providing a little attention in regard to root watering be given them for a short period following transplantation. The little extra trouble caused by raising the stock of Onions in this way is amply repaid by the comparative certainty of a good crop of bulbs, which will ripen earlier in the season than those sown in the ordinary way, which may therefore be harvested in a better condition for keeping. Onions sown in this manner have always, in my experience, escaped the Onion-fly, while those sown out-of-doors have invariably suffered from it in a more or less degree. This was strikingly illustrated to me in 1880 by two beds of Onions adjoining each other, one of which was autumn and the other spring-sown. And whereas the whole of the latter was completely destroyed by the maggot, the former, through being too large for the purposes of the fly, entirely escaped. Since that time, I have always sown the bulk of our Onion-seed in boxes at the end of January. They have been transplanted towards the end of April, and none of the subsequent crops have been affected by maggot. Our Onion-quarter here consists of twenty-three beds, each of which requires 720 plants, and with the exception of the loss of a few plants when they are moved, the remainder produce good, serviceable, well-ripened bulbs. *Geo. Woodgate, Rolleston Hall Gardens, Burton-on-Trent.*

MUSHROOMS.—In reference to Mr. Kneller's letter upon "Mushrooms in Pastures," I may say that the season here was a short one, there being but few until after the rainfall on October 12. Good gatherings then continued only for about a fortnight. Last spring we procured 2 bushels of spawn from a first-class London firm, and used it in different parts of the park and grounds, placing it about 2½ inches under the turf, and putting a little old Mushroom-bed manure with the spawn. The turf was then firmly replaced. The lines or rows were 6 feet apart, and the spawn was inserted at distances of 3 feet. This was done at the end of April. One part was fenced off and mown for hay, a second was grazed by cattle, and the third part being within the grounds, it was kept mown. In neither case has there been a Mushroom. I have been most successful with Mushrooms indoors, but in this case, if the result be not due to the dry weather, then I am, like Mr. Kneller, "in a fog." *J. Batters, Gillingham Hall Gardens, Norfolk.*

LARGER EXHIBITS.—I am not at all surprised to read the comments of "W. S." on my remarks on the above subject if he be an exhibitor. However, there may be some among the far-seeing members of the horticultural world who will agree with me. No doubt there are some—for their own personal interest—who would like to see the number of exhibits greatly reduced. In my opinion there is nothing awkward (as "W. S." terms it) in gardening or shows if there exists a determination to carry out a new project, but some men get into a groove out of which it is impossible to move them. With regard to "W. S.'s" ideas that small exhibits represent a man's ability in every way, is simply nonsense—how can it do so?—every expert gardener knows that in order to produce larger exhibits, far higher talents, greater foresight, and more energy are required than to produce a smaller one. I wish to point out the improvement that would accrue, and the advantages following the practice of larger exhibits. We should remember there are the visitors and patrons of our shows who should be catered for, for it is by their help that our flower-shows are kept up; therefore, we should do all that is possible to make the shows worthy of their patronage. *A. J. L., Wyfold Court.*

CHRYSANTHEMUMS AUSTRALIE AND MR. T. CARRINGTON.—The Classification Committee of the National Chrysanthemum Society has bracketed these two varieties as being either "synonymous, or too much alike." This surely is a mistake; or is it an attempt to disparage a really valuable variety? Notwithstanding this classification, Mr. T. Carrington will make a reputation for itself, and will continue to occupy a prominent position; and it is quite distinct from Australie in colour and form. The former is richer and clearer in tint, the florets are smoother and more even, and they are less whorled, and no competent judge would have any difficulty in discriminating between them. They are, I think, much more distinct than Pride of Madford and Duke of York, or Mrs. Mease and G. J. Warren; in fact, a bloom from an early bud of the latter could easily be shown as Mrs. Mease, and doubtless this has been done successfully. Of course, I do not argue that G. J. Warren and Mrs. Mease should be bracketed as "too much alike," but that the Classification Committee in bracketing Australie and Mr. T. Carrington acted with undue haste. *W. J. Godfrey.*

ROSE W. ALLEN RICHARDSON.—One of the most useful outdoor crops I am able to produce is the buds of Rose W. A. Richardson, the first of which are fit for cutting in May. The plants are trained to the outer wall of a heated pit, and they are pruned not later than the second week in January. A slight divergence occurs in different years as to the time the earliest blooms are ready, but in favourable seasons I have cut hundreds of buds in May; and early in June we have the above and other varieties always in quantity. I am aware that pruning Roses in the depth of winter is supposed to be attended not only by a modicum of risk, but almost with the certainty of losing the Roses altogether. It is, however, a supposition that may, in not a few instances, be safely ignored. Old rosarians performed Rose-pruning in autumn; with Roses, no doubt, of a less susceptibility to the changes of weather and climate than many of our present-day Roses possess. But so well does the above-named Rose respond to early pruning, when trained to a warm wall, as also Souvenir d'un Ami, and Souvenir de la Malmaison, each of which is a favourite at Tynninghame, that I have no hesitation in recommending others to make a trial. In pruning, as much old wood as possible should be removed, and strong, well-ripened shoots extended over the wall. From these are secured not only the greatest quantity of bloom, but also buds of the finest form. It is also worthy of note, that a plant of W. A. Richardson, if well thinned of exhausted and weakly growths after the first flush of bloom is past, will uninterruptedly bring a succession of flower-buds until the autumn. *R. P. B.*

CLEMATIS VITALBA, well known in southern England as a denizen of the hedge-row and woodland, is not plentiful in the north, but it is a plant that should be found a place in the shrubbery. At Belvoir there is a plant of this species, which is 20 feet in height and 30 feet in diameter, that is much admired in the winter months for the down-like wings of the seeds, which give it the appearance of being covered with white flowers when seen from a distance. This plant is growing over a Yew-tree, which has been much damaged in consequence. A better plan than this is to partially cut the Clematis down once in two years, and to thin out the young growths soon after. I know of no other plant which will cover arbours, pergolas, &c., so quickly as this; unfortunately, for this purpose, it has the disadvantage of being deciduous. One can easily understand why it is called Old Man's Beard, but the reason for its other common name, Traveller's Joy, is not so apparent. Can it be because the thick canopy forms a good shelter for the night's repose? *W. H. Divers, Belvoir Castle Gardens.*

LEPTOSPERMUM SCOPARIUM.—A small plant received by us from New Zealand early in 1896, through the kindness of Mr. Allen, is now in full flower outside at Belvoir, notwithstanding that 12° of frost were experienced on Jan. 25. So far it is quite hardy, planted in a warm corner. The leaves, when rubbed, gives off a pleasant odour, resembling that of Diosma fragrans, but scarcely so powerful as in the case of that plant. The figure of L. lævigata, in *Nicholson's Dictionary of Gardening*, gives a good idea of the flowers of my plant, but the leaves are quite different. *W. H. Divers, Belvoir Castle Gardens.*

EUCALYPTUS GLOBULUS.—An interest being evinced in the age and dimensions of species of Eucalyptus growing in these islands, I wish to state that I saw a very fine specimen of E. Globulus last summer in the gardens at Meadfoot Rock, Torquay; and Mr. Sloman, the gardener at that place, kindly sent me the age and height of this tree, viz., 20 years and 50 feet respectively. Spreading circumference of the trunk at the base is 3½ feet. *C. L. Branson, Coleshill Park.*

—— We have several in different sizes growing in pots, and they are all of the same character, but they seem to have altered very much since planted out in shape and colour of foliage. During the winter months they are much less glaucous than in summer, perhaps owing to low temperature and heavy rains. The suggestion that they are from seed taken from the mountains of Tasmania is interesting. They certainly are more hardy than one would expect; the first winter they were out we had some rather sharp frosts, over 20°, and the tops were crippled for a space of one yard, but in the spring they soon made new leaders and went away very rapidly. One is planted on the grass facing south-east, the other on a border facing south, but there is very little difference to be seen in their height; the stems are naked for a height of about 10 feet. *F. Knights, Lutterworth.* [A more careful examination of the specimen sent reveals the fact that the knotted bodies referred to are really flower-buds and not seed-vessels, and that the plant is really Eucalyptus Globulus. That it should be hardy and produce flower-buds in the midlands is very interesting. Ed.]

THE ROYAL GARDENERS' ORPHAN FUND.—The ballot papers with names and subscriptions of the ninteen candidates for election on February 17, have just been issued, and subscribers have ample opportunity of determining which in their estimation seem to be the most necessitous and deserving cases. Certainly some seem to be much less so than others, but personal bias will no doubt cause them to be as warmly supported as will others of a more desirable nature. But after carefully scanning the description given of each candidate's surroundings, I do not find one instance in which the words "father a subscriber to the Fund" appears. That is so painful a fact, that existing conditions seem almost to put a premium on neglect to do so much; and I think it is high time some conditions were inforced that should compel, on the part of gardeners, and especially those having young families, the giving of a small annual sum to the Fund, to entitle the children to become eligible. Charity is good, but if it encourages carelessness, to make some provision for orphans in such a case, then getting on to the Fund is being made too easy. It is worthy of note, that out of the nineteen applications, it is shown very properly in italics, that in six cases members of the families are already in receipt of relief from the Fund. In one case, which I can hardly regard as decent, with only two children in the family, both are nominated. That is rather hot work, and very improper. Probably it is in view of the growing effort thus to put so many children from one family on to the Fund that the Committee propose at the general meeting to amend Rule 11 by inserting the words "not more than two children of the same family can be in receipt of the benefits of the fund at the same time." No doubt that amendment will be adopted; but to check this effort to make the fund a sort of family relief in aid, I think it would have been better to have gone further, and have said that not more than one child from a family of not more than three children, not exceeding twelve years; or, two from a family of five children, not exceeding twelve years of age, can be in receipt, &c. It does seem to be needful to make the fund secure from being preyed upon by persons who would willingly see an entire family supported by it, whilst other more deserving cases are left vainly crying in the wilderness of neglect for the fund's benefits. *A. D.*

MOULDS ON MUSHROOMS.—In noticing F. F. Page's inquiry in *Gardeners' Chronicle*, January 28, p. 61, *re* fungus on Mushrooms, I would advise him, when preparing the soil for casing the bed, to mix about two or three shovelfuls of fresh lime with the soil. I have found this the only remedy for it. *C. D. Cowley.*

SOCIETIES.

ROYAL HORTICULTURAL.

January 31.—The second meeting of the committees since the commencement of the year was held on Tuesday last in the Drill Hall, James Street, Westminster. Though the Hall was better furnished with exhibits than was the case three weeks previously, the display was not by any means a large one. Orchids were not numerous, but there were some interesting varieties and hybrids of this genus, and several Awards of Merit and a First-class Certificate were recommended by the Orchid committee.

Before the Floral Committee there were large groups of choice varieties of the Chinese Primula; also collections of miscellaneous plants, Ferns, and a remarkable one of Rondeletia cordata. Hardy spring flowers, including the Narcissus, have made their appearance, but they are but specimens that have been obtained by frame or house-cultivation; still, these are the prelude to the season, and the enterprise of the hardy-plant cultivators will most likely provide plenty of such flowers at future meetings until the last of the latest flowering Narcissus has yielded its bloom in the open ground in May. Illustrations of the art of setting up cut-flowers were provided by an exhibit of considerable extent from Messrs. Miller & Co.

The Fruit Committee had little to do, their chief work being the testing of a new Apple, which was given an Award of Merit; and of appraising the Medal value of a collection of choice Apples from the Sawbridgeworth Nurseries.

A lecture upon the orchards of Nova Scotia was delivered by Mr. Hooper at 3 P.M.

The meeting of the Scientific Committee, at 4 P.M., was of more than usual interest. Mr, A. Sutton gave some interesting information regarding a series of experiments that Messrs. Sutton & Sons have lately made in respect to the Potato, details of which are given below.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. O. Thomas, H. B. May, R. Dean, W. Howe, C. Jeffries, J. Fraser (Kew), E. T. Cook, J. Hudson, J. Jennings, T. Peed, R. B. Lowe, C. E. Pearson, W. Bain, J. D. Pawle, R. W. Ker, J. Walker, C. E. Shea, J. W. Barr, H. J. Jones, H. J. Cutbush, C. Blick, and G. Paul.

A collection of Ferns from Messrs. J. Hill & Son, Lower Edmonton, including a number of good specimens of choice species and varieties. Particularly noticeable were Nephrolepis Duffi, Pteris tremula and Smithiana, Davallia pallida, a fine lot of the dwarf Adiantum capillus-veneris imbricatum, Gymnogramma calomelana, G. schizophylla gloriosa, Nephrolepis davallioides furcans, the pretty Cheilanthes myriophylla elegans, &c. (Silver Flora Medal).

Messrs. John Laing & Sons, Forest Hill Nurseries, London, S.E., contributed a group of miscellaneous plants. These were mostly stove species, and included finely-grown Codiæums and Cordylines, some of the choicer species of Palms and Begonias, Gloire de Sceaux, and B. Gloire de Lorraine, &c.

Mr. F. Miller, 110, Fulham Road, South Kensington, made an extensive exhibit of bouquets, and of spring-flowering and bulbous flowers, put up in vases and various Bamboo receptacles of miscellaneous devices. Several species of Cape Restiaceæ were used also with considerable effect. The exhibit generally was one of the best of its kind, and good taste was shown in the arrangement of the flowers. A species of shower bouquet was modified with the intention of representing the outline of a butterfly, and described as the "Butterfly" Bouquet. One of these, composed of Lilies of the Valley and Acacia had some merit (Silver Banksian Medal).

There was a grand show of Chinese Primulas from Messrs. H. Cannell & Sons, Swanley. The collection occupied one-half of one of the long central tables, and it was a pity that there was so poor a light in the hall, it being difficult to appreciate the exact shades of colour of the flowers. There were well-flowered plants in 6-inch pots, representing the true double-flowered sorts, as Marchioness of Exeter, white; Annie Hellier, light pink; Earl Beaconsfield, deep pink; King of the Purples, and Princess of Wales, white. Of single-flowered varieties, Kentish Queen was a very large flower, of pure white, freely flowered, and of good habit; Victory is a purple shade of crimson; nigrifolia oculata has exceedingly dark, beautifully-cut foliage, and compact trusses of white, much-crimped flowers, with a large centre of greenish-yellow; White Perfection has a very prettily-formed flower of purest white, and is of good habit; the Sirdar is a pretty red in several shades; and in Swanley Blue we have a mauve or light purple shade of colour, approaching the desired blue; Cannell's White is a very good variety of its section, and Eynsford White also. Blue Giant, Emperor Improved, Beacon, Swanley Giant, deep pink or purple; Eynsford White, &c., were others in this collection. Lady Emily Dyke showed the result of crossing "White Lady" with the show varieties, and showed an abundance of charming flowers, of less stiffness than the popular types. All of the plants were furnished with an abundance of healthy foliage, and well demonstrated the decorative value of the Primula (Silver Flora Medal).

Mr. Robt. Owen, the Floral Nursery, Maidenhead, had also a collection of plants of Primula sinensis. These plants evidenced good cultivation, and were representatives of a good strain (Bronze Flora Medal).

Rhododendron flowers (nobleanum ?), gathered from the open garden, were exhibited by Mr. Gabriel, Elmstead, Streatham (gr, Mr. H. Guyett). This is another testimony of the precocity of certain plants, induced by the absence of severe frost.

Messrs. Barr & Sons, 12, King Street, Covent Garden, showed Narcissus minimus, Bulbocodium vernum, Iris histrio and I. histrioides, and Chionodoxa Sardensis, all flowering in pots. Also a plant in flower of Veltheimia viridiflora.

A splendid lot of Daffodil flowers, as market samples, was contributed by Messrs. Collins Bros., Hampton, Middlesex, and Waterloo Road, S.E. They represented the varieties Telamonius plenus, Golden Spur, Spurius, Princeps, and Poeticus ornatus. One and all were very fine large flowers for specimens, forced into flower during January (Silver Banksian Medal).

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea, had blooms of varieties of their hybrid greenhouse Rhododendrons. Nothing could surpass these in attractiveness; especially noticeable being Princess Alexandra, white or pale pink; Conqueror, red; Ceres, yellow; Primrose, Purity, Aphrodite, blush, &c.

Messrs. F. Sander & Co., St. Albans, again staged fine specimens of their Acalypha hispida (Sanderi) in flower; also plants of Dracæna Sanderiana, Linospadix Petrickiana, and other new plants introduced to notice last year.

A magnificent group of plants in pots of Rondeletia (Rogeria) cordata was shown by Messrs. F. Cripps & Son, Tunbridge Wells, Kent. Some of these were standards from 4 to 5 feet high. The growths and foliage were most luxuriant, and each shoot bore terminal cymes of the pretty pink flowers. This Rubiaceous plant was introduced from Guatemala in 1844.

Plants Certificated.

Acalypha Godseffiana.—A very ornamental species of Acalypha that has been frequently described in these pages, and of which a figure was given in the *Gardeners' Chronicle*, April 23, 1898, p. 242 (Messrs. F. Sander & Co., St. Albans).

Lapageria rosea var. "The Knoll."—A large and free-flowering variety of this well-known greenhouse trailing plant. (Sir T. Lawrence, Burford).

Orchid Committee.

Present: Harry J. Veitch, Esq, in the chair; and Messrs. Jas. O'Brien (hon. sec.), Sydney Courtauld, F. Mason, De B. Crawshay, J. Douglas, E. Ashworth, T. W. Bond, C. Winn, E. Hill, F. J. Thorne, W. H. Young, H. J. Chapman, J. Gabriel, J. Jaques, H. Little, H. Ballantine, and H. M. Pollett.

Cattleya Trianæi was the principal of the showy kinds exhibited, and of these Elijah Ashworth, Esq., Harefield Hall, Wilmslow (gr., Mr. Holbrook), staged two remarkable forms, the finest of which was C. T. Ernest Ashworth and C. T. albida var. E. Ashworth, a very large white flower, with slight blush tint on the front of the lip.

F. Knight, Esq., Thundersley House, Thundersley, Essex (gr., Mr. E. Marston), was awarded a Silver Banksian Medal for a pretty group of excellently well-grown and flowered varieties of Cattleya Trianæi, ranging from the light forms to some with intensely richly-coloured crimson fronts to the lip, the whole serving to demonstrate what a splendid winter flower C. Trianæi is when properly developed.

Philip Crowley, Esq., Waddon House, Croydon (gr., Mr. J. Harris), showed Cattleya Trianæi Waddon House variety, of a delicate shade of peach blossom.

Messrs. Linden, l'Horticulture Internationale, Parc Leopold, Brussels, also showed a very handsome blotched form of Odontoglossum crispum, O. Andersonianum Schusterianum, of a bright yellow, with peculiar reddish markings; Cypripedium insigne Luciani of the C. i. Sanderæ class, but of a darker yellow; and a singular hybrid, said to be between Zygopetalum crinitum and Batemannia Colleyi, and provisionally named Zygo-Batemannia × Mastersii. It approached nearest to the section of Zygopetalum represented by Z. Murrayanum (*Bot. Mag.*, t. 3674). Sepals and petals greenish, with purplish markings; lip white, with purple-tinted callus.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed Odontoglossum crispum Imperatrix, a large, perfectly-shaped white form, with red-brown blotch on the lip, and a smaller blotch on some of the lower sepals.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), showed C. × Chamberlaino-Leeanum, and a collection of cut-flowers of varieties of Lælia anceps, and a good Cypripedium × Chapmani.

Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray), showed a flower of his remarkable Calanthe × Oakwood Ruby, the cold in the north preventing the plant from being sent. It is a remarkable instance of what perseverance and selection may do; for in this case, the C. vestita rubro-oculata begun with years ago, has been changed in a remarkable manner, from a white flower with a dark blood-red spot in the centre, to a flower wholly of a rich blood-red colour, with a small white eye—the original state reversed. Its pedigree is, first, C. vestita rubro-oculata × rosea, which resulted in C. × Veitchi, Oakwood var., this crossed again with C. vestita rubro-oculata, brought C. × Alexandri, which was again crossed with rubro-oculata, and the progeny seeded from for several years, the darkest being selected for seeding each time with the remarkable result named.

Mr. Jas. Douglas, Edenside, Great Bookham, was awarded a Silver Banksian Medal for an effective group of cut Orchids, among which were fine forms of Lælia anceps, hybrid Calanthes, Cypripedium Boxalli, Cœlogyne cristata, his pretty pale yellow Lælia × Brysa, &c.

H. F. Symonds, Esq, Woodthorpe, Beckenham (gr., Mr. Geo. E. Day), showed a pretty group, made up of very fine specimens of Dendrobium Jamesianum, Lycaste Skinneri alba, Odontoglossum crispum, O. Andersonianum, O. mulus, Cœlogyne cristata, and some Cypripediums, among which was C. × Almos, apparently a good form of C. × Sallieri (Silver Banksian Medal).

Messrs. Hugh Low & Co., Enfield, showed Phalænopsis × Wiganiæ, said to be between P. Schilleriana and P. Stuartiana. The sepals and petals were white, with a bright rose-pink glow in the centre, the lower halves of the lateral sepals being spotted with dark rose colour; lip white, with a yellow callus and many crimson spots. Messrs. Low also showed Cypripedium insigne Sanderæ.

H. S. Leon, Esq., Bletchley Park, Bletchley (gr., Mr. Hislop), showed Cattleya × Hislopi (Lawrenceanum × Luddemanniana Ernsti). The flower, which was of an uniform tint of rose colour, darkest on the lip, showed traces of C. Luddemanniana in the lip, and when strong will doubtless develop more marked characteristics.

Mr. W. Driver, gr., Longford House, Minchinhampton, sent Cypripedium villosum.

Awards.

Lælia anceps Amesiana, Crawshay's variety.—This variety has previously been given an Award of Merit, and upon the flowers obtaining full colour, a First class Certificate was awarded. Its distinguishing characteristics are the depth, brightness, and richness of its colour, which far surpasses the original. It was figured in our columns January 22, 1898, fig. 22, p. 59. From De Barry Crawshay, Esq.

Cypripedium Miss Louisa Fowler (Chamberlainianum × insigne var.).—A very pretty hybrid, of which the suggested cross with a form of C. insigne, is doubtless correct. The upper sepal was pale green, with lines of heavy purple blotches, those nearest the edge being smallest. Lower sepal green, with a few purple dotted lines, petals curved forward, and suggesting C. Chamberlainianum in form; the edge wavy and ciliate, tinged and veined with purple; lip bright light rose; staminode cushion-like, and yellow. From J Gurney Fowler, Esq. (Award of Merit).

Masdevallia Curlei (M. macrura and tovarensis).—A very remarkable hybrid, with the long wax-like flowers of M. macrura, and white-like M. tovarensis. From Sir T. Lawrence, Bart. (Award of Merit).

Epidendrum umbellatum.—A species with fleshy-green leaves and flowers in few-flowered umbels succeeding each other, and of a pale green colour. From Messrs. Stanley, Mobbs & Ashton, Southgate (Botanical Certificate).

Cypripedium × Wiertzianum (Rothschildianum × Lawrenceanum).—A showy hybrid, with white upper sepal bearing a number of purplish-chocolate lines; the petals are white, with purple spots, and a faint rose tinge; the lip a dark purplish-rose. From Messrs. Linden, Parc Leopold, Brussels (Award of Merit).

Cattleya Trianæi var. E. Ashworth.—A noble flower, with pure white sepals and petals, the latter being over 3 inches wide. The base of the lip was blush-white, the disc bright yellow, and the front lobe an intense purplish-crimson colour, with narrow white margin. From E. Ashworth, Esq. (Award of Merit).

Cattleya Trianæi var. Memoria Lindeni.—A grand form, resembling their C. T. Imperator, and having a similarly coloured rich claret-crimson lip. From Messrs. LINDEN, Parc Leopole, Brussels (Award of Merit).

Fruit Committee.

Present: Philip Crowley, Esq., chairman; and Messrs A. F. Barron, W. Poupart, W. Wilks, Alex. Dean, J. W. Bates, F. Q. Lane, G. Reynolds, and J. Willard.

Messrs. T. RIVERS & SON, Sawbridgeworth, had a table of magnificent fruits. These were chiefly Apples, and the following varieties were noticed:—Gloria Mundi, Buckingham, Gascoigne's Scarlet, King of Tomkins Co., Belle de Pontoise, Nancy Jackson, Melon, Wagener, Reinette du Canada, Reinette Doree de Hensgen, Lord Derby, Bijou, Bailey's Sweet, Wadhurst Pippin, Lewis' Incomparable, and Emperor Alexander. The quality of these fruits was remarkable, and some of the varieties are less common than they might be. Some fruits and sprays of foliage of varieties of St. Michael's Orange were very attractive (Silver Knightian Medal).

W. ROUPELL, Esq., Roupell Park, S.W., showed a few samples of Newton Wonder, Smart's Prince Albert, and Annie Elizabeth Apples from his suburban garden, within the five miles radius. The fruits were in a good state of preservation.

AWARDS.

An Award of Merit was recommended to a new seedling Apple, named Lady Pilkington, from the Southport and Churchtown Botanic Gardens. In appearance it is exceedingly like to Dumelow's Seedling, but the flesh is softer and more agreeable to eat. The eye is less open also.

Scientific Committee.

EXPERIMENTS ON CROSS-BREEDING POTATOS, ETC.

AT the meeting of the Scientific Committee on Tuesday last, Mr. A. W. SUTTON exhibited the results of his experiments, which were of a very interesting character. They had reference to the grafting of a scion from the Tomato on to the haulm of a Potato stock; a similar engrafting of Solanum nigrum and of Solanum esculentum. The Potato in each case was grown in a pot, the haulm cut back and worked with the Tomato or the Solanum. Further experiments were made in fertilising the flowers of a Potato borne on a Potato-scion engrafted on a Tomato-stock, and reciprocally. Tubers of uncrossed and of crossed Solanum Maglia were also shown, together with tubers of Solanum etuberosum and other varieties. The following details refer to the specimens exhibited:—

Potato Grafts.

No. 1.—Typical sample of the old Paterson's Victoria Potato.

Potato Victoria grafted with a scion of Tomato.

No. 2.—In 1895, a plant of Victoria Potato was grafted with a scion from the Tomato (variety Maincrop), and all the Potato stems other than the one grafted with Tomato were carefully removed. The graft was made about 3 inches above the soil. The tubers produced by this plant in 1895, '96, and '97 were certainly small, and in striking contrast to the typical Victoria. The tubers now sent marked No. 2 are a fair sample of those grown last season, for comparison with type No. 1. [Very small].

Potato Victoria grafted with scion of Solanum nigrum.

No. 3.—In the same year (1895) another plant of Potato Victoria was grafted in the same manner, but the graft in this case was Solanum nigrum. The tubers marked No. 3 of crop 1898 do not differ from the type No. 1 (ordinary Paterson's Victoria).

Potato Supreme grafted with a scion of the Egg-plant (Solanum esculentum).

No. 4.—In 1895, a typical sample of Potato Supreme was grafted with a scion from the Egg-plant. In this case also the character of the Potato has been unaffected by the graft.

No. 4A.—Are tubers grown in 1898 from the grafted plant.

Experiments in Cross-fertilising Potato-flowers borne upon the Tomato-plant grafted with Potato.

No. 5.—A typical sample of the old Potato Woodstock Kidney.

No. 5A.—In 1895 a stock of Tomato, Earliest-of-All, was grafted with a scion of Potato Woodstock Kidney. The Potato flowers produced on the scion were fertilised with pollen from the Tomato Earliest-of-All, and seed saved in the summer 1895. The seed sown in March, 1896, produced tubers mostly small and diseased. In 1897 the crop again was very small and diseased. In 1898 the crop was a good one, the tubers being almost or quite round, not unlike a handsome Tomato, but this contrast to the shape of Woodstock Kidney is not greater than is constantly seen in seedling Potatos, where no cross-fertilisation has taken place. There is no apparent difference between the foliage of 5A and that of many other Potatos.

No. 5A was the only seedling considered worth keeping in the autumn of 1896. All the other seedlings were discarded as very unpromising.

No. 5B.—Tomato, Earliest-of-All, was grafted with a scion of Potato Woodstock Kidney, in 1895. The Potato flowers in this case were fertilised with their own pollen. The seed was sown in 1896, and the tubers were very similar in type to Woodstock Kidney. In 1898 the trial report on the seedling was "a medium crop of tubers resembling Woodstock Kidney." In this case also only one seedling was kept in the autumn of 1896.

From a comparison of 5A and 5B, it would certainly appear that the Tomato pollen had affected the seedling resulting from the cross.

Solanum Maglia Hybrids.

No. 6.—Typical tubers of Solanum Maglia grown from the Kew stock.

No. 6A.—In 1887, some hundreds of flowers of Solanum Maglia were fertilised with pollen from cultivated Potatos, but the only cross effected was with pollen taken from an unnamed Potato seedling, and this cross resulted in two seedlings, but one of these was so weak that, notwithstanding every care, it was lost. The other produced tubers the first year corresponding to sample 6A, and as the result of careful cultivation it has increased in size during recent years, as shown by sample 6B. The general constitution of the seedling is weak, and as a variety of Potato, it will not for a moment compare with the ordinary Potatos of commerce.

Solanum etuberosum.

No. 7.—Solanum etuberosum received in 1887 from Mr. Lindsay, of the Royal Botanical Gardens, Edinburgh, which have been grown each successive year. The tubers when received were very small, about the size of No. 7, but flatter, and have increased in size during the intervening years, until they have now reached the size of marketable Potatos, as represented by the sample 7A.

Curious Varieties of Potatos or distinct Species.

No. 8.—In 1888, Mr. Sutton received from a correspondent a distinct variety of Potato from Africa, the shape being somewhat similar to the Fir-apple Potato, but mottled in colour. The foliage is exceedingly dark in colour, and distinct from any other with which I am acquainted. The stems are erect and very bushy, and the leaves are so round as to appear at first sight entirely unlike those of the Potato, and rather resemble those of the Urtica dioica, the common Stinging-nettle. At a distance one would hardly think the foliage could be that of a Potato.

No. 8A.—The tubers, as received, were about the size of sample No. 3, but as a result of good cultivation they have now reached the size represented by sample 8A.

No. 9.—Specimens of the large white Fir-apple Potato.

No. 10.—Specimens of the small white Fir-apple Potato.

No. 11.—Specimens of the red Fir-apple Potato. These three Potatos produce flowers, but no berries. The foliage generally speaking, corresponds with that of other Potatos, and is quite unlike No. 8.

Results of sowing Tomato-seed saved from Potato-plant Grafted with Tomato.

1895.—In this year a scion of Potato Victoria was grafted with Tomato Maincrop. Seed was saved in the autumn of 1895.

1896.—Seed sown, several plants raised, and seed again saved.

1897.—Seed from last year's trials sown in the spring, and ten or twelve plants put out in the open in June. It was evident on comparing these plants with several trials of the true Maincrop Tomato growing alongside that the graft had materially affected the variety, which happens to have very distinctive characteristics, the leaves of Maincrop being exceptionally large, massive, and almost entire in outline, generally at least three times the size of those of the ordinary Tomato; the plants of the seedling appeared quite distinct from the true Maincrop; there were many more fruits on each plant, and these fruits were decidedly smaller and earlier, and more corrugated. The leaves, however, were similar in character, but decidedly smaller. Seed was again saved from these plants.

1898.—Seed sown again, and the same number of plants put out in June. The 1897 notes were entirely confirmed, but the contrast between these plants and those of the true Maincrop Tomato growing alongside was perhaps more marked than in the preceding year.

Lecture.

A YEAR AMONG THE ORCHARDS OF NOVA SCOTIA,

given by CECIL H. HOOPER, M.R.A.C., F.S.I.

On Tuesday afternoon, January 31, at the Royal Horticultural Society's meeting, Mr. HOOPER began by describing the geography, climate, and soil of the Annapolis valley, the renowned fruit-belt of Nova Scotia. The extent of the valley is about one hundred miles, its width about ten, most of which is adapted to Apple-raising. In the centre of the valley is a peaty soil over sand, where an important Cranberry industry is beginning. There are about 200 acres at present devoted to Cranberry bog, which give excellent monetary returns. Mr. Hooper is of opinion, than Cranberries would make a remunerative crop on some of the English and Scotch moor and heath land, as it is apparently on similar land that the Cranberry thrives so well in Nova Scotia. He said that the two chief manures used in the orchards were bone-meal, about 5 cwt. per acre, muriate of potash 20 cwt.

He went fully in the method and details of spraying combinedly for fungi and caterpillars with copper-sulphate, lime, and Paris-green; he exhibited a spraying-pump, such as is commonly used in Nova Scotia, capable of delivering a fine spray at 20 or 30 feet from the ground. Grease banding is practised to a small extent in Nova Scotia, but it is generally considered that if spraying is thoroughly done at the right periods, the bands are not necessary, their greatest use being on tall trees, difficult to spray thoroughly. The Nova Scotia orchards are ploughed, and during the summer are either cropped with vegetation requiring frequent cultivation, as Potatos, Maize, and Beans; or, if uncropped, they are frequently harrowed, to maintain a fine tilth 3 inches deep.

A full description of the sorting and barrelling of the Apples was given. His opinion of the fruit and orchards was, that the fruit was generally large, well-coloured, and abundant; but with the exception of the Gravenstein Apple, he considered the flavour not quite so good as the best English Apples. The trees appear to grow rather larger than in England; and he gave an example of a Nonpareil Apple-tree at Cornwallis Rectory having a circumference of 10 feet at 1 foot from the ground, which, during the last twenty years, has yielded from 2 to 14 barrels, and averaged 9 barrels of 120 lb. each. The orchards generally he considered better cultivated and cared for than those of England, and the produce was certainly better in size and colour than the fruit of England generally; but the best English orchards and finest English fruit equals anything he saw in Nova Scotia.

Mr. Hooper dealt at some length with the work of the Nova Scotia Fruit-Growers' Association, and its School of Horticulture at Wolfeville, as a good example of farmers combining for the welfare of their industry; also with the work of the Office of Agriculture of Nova Scotia, with its model farm and dairy school at Truro, and the Provincial Experimental Station at Nappan for the trials of different varieties of corn, vegetables, and fruits, under the Department of Agriculture of the Dominion. The School of Horticulture is attached to the Wolfeville University, and is managed jointly by the Fruit-Growers' Association and the Nova Scotia Office of Agriculture; its course is from the beginning of November to the end of April. The classes are free, and they consist of classes for botany, microscopical botany, and horticulture; in the latter, the propagation of plants and fruit growing are chiefly dealt with. The school consists of a class-room, with a good library of English, Canadian, and American books and horticultural journals, and microscopes. There is a potting-shed and workshop, a root-cellar for Apple-stocks to be root-grafted during the winter; a glass-house with ornamental plants, flowers, and fruit-trees for grafting and budding, and a propagating-bed. The school is surrounded by ornamental grounds, and has a fruit-tree nursery attached. Farmers are invited to look round at any time, to attend any class or lecture that may be going on, and to bring specimens for identification, or to ask questions.

THE ROYAL SCOTTISH ARBORICULTURAL.

(Continued from p. 64.)

JANUARY 24.—Perhaps the most important incident in the report was the presentation of a Forestry bursary of £30 by Mr. MONRO FERGUSON, M.P., and permission to the forestry students to make visits to study in the woods of Martly, thus taking the initiative in establishing a school of forestry, and for which a Government grant is expected. The Treasurer's report, which showed a balance in hand of £124 6s. 9d., was approved.

COLONEL BAILEY referred to the general reports that timber-growing did not pay in this country. He assured his hearers that there was, however, little or nothing the matter with our soil or our climate telling against the growth of timber-trees; we had as much sunshine as North Germany or the shores of the Baltic. He also wanted to know where we could find worse soil in this country than the French forest country, or the shores of the Bay of Biscay, consisting of from 94 to 95 per cent. of silica. Of course, we may place forests too high for the production of good timber; but on the flanks of hills, and on the sides of valleys and streams, timber-trees grow well. The fact was, that profit on timber was not the chief object of the owners of woodland, but rather it was shelter from the wind, the rearing of game-birds, and obtaining picturesque effects, and each of these militated against profitable forestry.

For more than thirty years this Society had been urging the application of sylvicultural methods to the growth of timber, and a school or schools for the training of young foresters was one of the great needs of the day. In 1882, the Council of the Society recommended the establishment of a forestry school. In 1889, the present Forestry Lectureship was founded in the Edinburgh University. In 1891, efforts were made to raise the Lectureship to the dignity of a Professorship, but this had not yet been done. During the current year the Society addressed a memorial to the Minister of Agriculture, urging him to secure a small State forest, which should serve the following ends: firstly, to show what could be done by sylvicultural methods, and their monetary results; secondly, to present the landlords and foresters a successful object-lesson, showing them how the best results were to be obtained; thirdly, to provide an efficient training-ground for forestry students; and fourthly, to provide a State forest in which researches could be carried out, and for the compilation of accurate forestry data for the country at large. Unfortunately, the Minister's reply was a polite refusal. This was specially unfortunate, as, perhaps, there is no art which needs practical demonstrations more urgently than scientific forestry; and this was one of the chief objects in establishing a State Forest School near Edinburgh. As yet we had not felt a pressing need for timber grown at home, good foreign wood being cheap and plentiful. But the consumption of wood was increasing, and in some directions the demand greatly exceeded the available supply. Mr. Mungo Ferguson had kindly allowed them, for educational purposes, the run of the woods of Martly, some 800 acres, which, with the woods at Novar, would be worked on a systematic plan, and would go far to enable them to answer the question, whether the cultivation of timber trees is a paying business. The Colonel concluded by proposing the Earl of Mansfield as his successor.

The EARL OF MANSFIELD, who accepted the chair, thanked the Society for their kindness in electing him, and said he had partly accepted office to oblige his old friend Mr. Munro Ferguson; but apart from that, he felt honoured in being appointed to the office, and would do what he could to be a satisfactory president of the Society.

Office-Bearers.—Colonel Bailey, Mr. Malcolm Dunn, and Mr. Methven, were elected vice-presidents. Messrs. C. Buchan, Penicuick; William Gilchrist, Leuchars; Wm. Makinon, nurseryman; John T. McLaren, Polmaise, Stirling; and John Methven, nurseryman, Edinburgh, were proposed for the Council. Mr. Waldegrave Leslie thought there were too many Edinburgh nurserymen on the Council. On being put to the vote, 22 voted for Mr. Boyd, and 19 for Mr. McLaren. Mr. Munro Ferguson was re-elected honorary secretary, and Mr. Robert Galloway treasurer and secretary, both being thanked for past services.

The excursions undertaken next autumn are to be made to Ross-shire and Sutherland, the Novar, Skits, and Lovat estates; and to France next year during the great exhibition in Paris, the time devoted to it being probably a fortnight.

An interesting letter was read from SIR JAMES GIBSON CRAIG, Bart., of Riccariton, giving particulars of a venerable Scottish Fir which was blown down recently, and thought to be 270 years old.

At the conclusion of the ordinary business, Colonel BAILEY gave an instructive and interesting account of a recent visit he had made to Canada, illustrating it with maps and lime-light views. He explained that Britain imported annually £18,000,000 worth of timber, having added some £2,000,000 within the last eight years, of which £3,500,000 came from Canada, £4,000,000 from Sweden, £4,000,000 from Russia, and £2,500,000 from the United States. One third of these imports came across the Atlantic. The United States also imported from Canada twice as much wood as they exported to this country. An official of the Canadian Government reported in 1895 that the country contained 250,000 square miles of forests, a large portion, however, had not got timber ever likely to be exported. Timber supplies were also being constantly reduced by settlers burning their clearings, the needs of the new railway lines, &c. For all that, Canada had still great resources in timber, which, if wisely managed, and the cutting effectively controlled, will ensure plenty of wood for themselves and for us for a long time to come.

The annual dinner took place at the North British Hotel in the evening, the Earl of Mansfield taking the chair.

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT.

THE members of the Isle of Wight Horticultural Improvement Association recently visited Southampton to inspect the warehouses of the Messrs. Toogood & Sons, Royal Seedsmen; and the manure works of Messrs. Spooner & Bailey.

They were met at the pier by the Messrs. Toogood, and driven to the firm's Chapel seed-packing warehouse, which has a floor area of 388,800 square feet. Much interest was felt by the visitors in watching the actual work of seed-cleaning and packeting. The shop and offices were next visited, and the members of the Association were then entertained to luncheon by the Messrs. Toogood.

The visit to the manure works of Messrs. Spooner & Bailey was interesting. The manufacture of sulphuric acid was fully shown and explained, also of various other manures, and the mixing of special manures.

THE PEOPLE'S PALACE HORTICULTURAL.

JANUARY 26.—The members of this Society dined together at the Three Nuns Restaurant, Aldgate, on the above date, under the presidency of E. Flower, Esq., M.P., one of the Hon. Secretaries, and also one of the founders of the Society.

The Society, which is doing much good work in the district, in encouraging a taste for window and other forms of gardening, was founded in 1887. It adds yearly to the number of its subscribers, and has held several shows annually, and last year to the number of four, considerable sums in prizes being awarded. The President, in the course of his remarks, dwelt on the fact that it was to a large extent a self-supporting and self-governing Society. The membership was now 510 strong.

In proposing the health of the acting Secretary, Mr. C. E. Osborn, the Chairman bore testimony to the value of his work; the success achieved had largely resulted from Mr. Osborn's warm interest in the work.

Obituary.

MR. JOHN NICHOLL.—Many readers of the *Gardeners' Chronicle* will regret to learn the death of Mr. John Nicholl, nurseryman, of Redruth, which took place January 25, 1899. He was for many years the owner of the Redruth nursery, and had a wide experience as a landscape gardener. Many hundreds of acres of plantations now adorning the hills and dales of Cornwall were planted by him, or under his directions. Well informed on many matters, and always courteous, a chat with him was very entertaining. The deceased was eighty-four years of age. He will be greatly missed by a wide circle of friends. *J. M.*

MARKETS.

COVENT GARDEN, FEBRUARY 2.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. ED.]

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per bushel	3 0- 4 0	Grapes, Gros Colmar	1 3- 1 9
— Beelings, bushel	4 0- 5 6	— Muscats, per lb.	3 0- 6 0
— Greenings, per bushel ...	4 0- 5 6	— Almeria, p. doz. lb.	6 0- 9 0
— Wellingtons, bushel ...	6 0- 9 0	— Belgian, lb. ...	0 6-0 10
— Sourings, per bushel ...	3 6- 5 6	Lemons, per case...	7 6-14 0
— French, Reinette Gris, cases... ...	7 0- 7 6	Lychees, Chinese, packet, 1 lb. ...	1 6 —
— — Dieu Donné, cases	11 0-11 6	Oranges, Jaffa, cases	9 0-11 0
— — Crabs, bush.	4 0- 5 0	— Denia, case of 420	7 0-12 0
— — large cookers, cases... ...	7 0 —	— Mandarin, pkt. of 10 boxes ...	5 0 —
— Nova Scotia Baldwins, Greenings, Gold Russets, & other sorts, per barrel ...	16 0-25 0	— Valencia ..	6 6-12 0
— Californian New Towns, Fancy Reds, &c., per case	7 0-10 0	— Seville Bitter, per case ...	5 6- 6 0
Bananas, per bunch	7 0-10 0	— Tangierine, box of 25... ...	0 6-0 10
Chestnuts, various, per bag ...	4 0-12 0	— — box of 420	10 0 —
Cobnuts, per 100 lb.	30 0-40 0	Peaches, Cape ...	8 0-14 0
Cranberries, American, box ...	12 0 —	Pears, Californian, Easter Beurré, case, 108 ...	18 0 —
Grapes, English, Alicante, lb. ...	1 0- 1 6	— Glout Morceau, per case ..	18 0 —
		— — half-cases ...	10 0 —
		Plums, Cape ...	10 0-11 0
		Pines, St. Michael's, each	3 6- 8 0
		Strawberries, p. lb.	12 0-18 0
		Walnuts, kiln-dried, Naples, cwt. ...	36 0 —
		— — peck ...	4 0 —

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d		s. d. s. d.
Artichokes, Globe, per doz. ..	2 0- 3 0	Horseradish, foreign, p. bundle	1 0- 1 3
— Jerusalem, per sieve	1 3- 1 6	Leeks, doz. bunch.	2 6 —
Asparagus, Paris, green	5 0- 6 0	Lettuce, Cabbage, per doz. ...	0 10-1 0
— Giant, bundle..	15 0-18 0	Mint, new, forced, per doz. bunch.	6 0-10 0
— Spanish, bund.	2 0 —	Mushrooms, house, per lb.	0 7- 0 9
— Sprue	0 8- 0 9	Onions, Albanians, bags	6 0- 6 6
— English, per 100	5 0- 7 0	— Dutch, per bag	5 0- 5 6
Beans, Dwfs., Channel Islands, lb.	2 0- 2 6	— English, cwt...	6 0- 6 6
— French, per lb.	0 4- 0 6	— Valencia, cases	9 0- 9 6
— Madeira, bkt.	3 6 —	— picklers, sieve	3 0 —
Beetroots, per dozen	0 6- 0 9	Parsley, per dozen	1 0- 1 6
— bushel	2 0 —	— sieve	1 0 —
Broccoli Sprouts, per bushel ...	2 0- 2 6	Parsnips, per dozen	0 6- 0 9
Brussels Sprouts, per sieve ...	1 6- 2 6	— cwt. bags ...	3 0- 3 6
— per bushel ...	2 6- 3 0	Peas, French, pkts., about 1 lb. ...	0 5- 0 7
Brussels tops, bush.	1 6 —	Potatos, Hebrons, Snowdrops, Up-to-Date, &c., per ton	60 0-80 0
Cabbage, Coleworts, per bushel ...	2 0- 2 6	— New Algerian Kidneys, per lb.	0 2½ —
— Savoys, p. doz.	1 3- 2 0	— — Frame, lb.	0 4- 0 6
— — per tally ...	6 0-10 0	— — Teneriffe, per cwt. ...	12 0-18 0
Cardoons, each ...	1 0- 1 3	Radishes, Round, breakfast, per dozen bunches	1 3- 1 6
Cauliflowers, p. doz.	1 0- 1 2	Rhubarb, York, per doz. bundles ...	1 3- 1 6
— per tally ...	6 0- 8 0	Salad, small, punnets, per dozen	1 3 —
— Italian, baskets of 18	3 3- 3 9	Scotch Kale, bushel	2 6- 3 0
Celeriac, per dozen	2 0- 2 3	Seakale, per dozen punnets ...	10 0-14 0
Carrots, washed, in bags	3 0 —	Shallots, per cwt....	8 0- 9 0
— unwashed ...	2 0- 2 6	Spinach, French, crates	3 0- 3 6
— Surrey, bunchs.	2 0- 2 6	Tomatos, new English, per lb.	1 0 —
— French flats ...	1 3- 1 6	— Canary, boxes..	2 0- 4 0
Celery, Red, dozen bundles ...	8 0-12 0	Turnips, Eng., per doz. bunches ...	2 0 —
— unwashed ...	6 0 —	— in bags... ...	2 0- 2 6
Chicory, per lb. ...	0 3 —	Turnip-Tops, bag...	2 0- 2 6
Chow Chow, or Chahota, case about 30 lb.	4 0 —	Watercress, p. doz. bunches ...	0 6-0 10
Cress, doz. punnets	1 6 —	Yams from Canaries, case	7 0 —
Cucumbers, per doz.	5 0-10 0		
Endive, French, per dozen	1 9- 2 0		
— Batavian, doz.	1 9- 2 4		
Garlic, per lb. ...	0 3 —		
Horseradish, New English, bundle	2 0- 2 6		
— — loose per doz., fine ...	2 0 —		

POTATOS.

Beauties, Saxons, Giants, Up-to-Date, &c., according to sample, 60s. to 80s. per ton; Dunbar Main Crops, 90s. *John Bath, 32 and 34, Wellington Street, Covent Garden.*

REMARKS.—On Saturday, January 28, some fine stout, capitally-grown Seakale was on sale in the Market, and realised 14s. per dozen punnets. The Cape Peaches were stated to be good in quality, and other importations are expected to arrive. Shallots are a very slow trade. Tomatos from the Canaries are now coming in fine condition. The Potato trade is slow.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemones, dozen bunches	1 0- 1 6	Narcissus, White, p. dozen bunches ...	1 6- 2 0
Arum Lilies, dozen blooms	3 0- 4 0	Orchids, per dozen blooms	6 0-12 0
Asparagus "Fern," bunch	2 0- 3 0	Pelargoniums, doz. bunches	4 0- 6 0
Azalea, white, 12 bunches	4 0- 6 0	— scarlet, per doz. bunches	8 0-10 0
Bouvardias, per bun.	0 4- 0 6	Pink Roses, per dozen	4 0- 6 0
Carnations, per doz. blooms	1 6- 3 0	Roses (indoor), doz.	1 6- 2 0
Eucharis, per dozen	2 6- 4 0	— Tea, white, doz.	2 0- 3 0
Gardenias, per doz.	2 0- 3 0	— Perle, per doz.	1 0- 2 0
Hyacinths, Roman, per doz. bunches	5 0- 6 0	— Safrano, p. doz.	1 6- 2 0
Lilium longiflorum, per dozen ...	6 0- 9 0	Smilax, per bunch	2 0- 3 0
Lily of the Valley, dozen bunches ...	6 0-10 0	Tuberoses, 12 blms.	0 8- 1 0
Marguerites, 12 bun.	4 0- 5 0	Tulips, per dozen...	0 6- 1 3
Maidenhair Fern, per doz. bunches	6 0- 9 0	Violets, per dozen bunches	1 0- 2 0
		— Parma, bunch	2 0- 2 6

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arbor Vitæ, p. doz.	12 0-36 0	Ferns, small, per 100	4 0- 6 0
Aspidistras, p. doz.	18 0-36 0	Ficus elastica, each	1 0- 5 0
— specimen, each	5 0-10 0	Foliage plants, var., each	1 0- 5 0
Dracænas, various, per doz.	12 0-30 0	Lycopodiums, doz.	3 0- 4 0
— viridis, p. doz.	9 0-18 0	Marguerite Daisy, per dozen ...	6 0- 8 0
Euonymus, various, per dozen ...	6 0-18 0	Myrtles, per doz....	6 0- 9 0
Evergreens, in var., per dozen ...	6 0-24 0	Palms, various, ea.	1 0-15 0
Ferns, in variety, per dozen ...	4 0-12 0	— specimens, ea.	21 0-63 0
		Scarlets, per doz.	4 0- 6 0

SEEDS.

LONDON: *February* 1.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that there is now a good inquiry for bold, clean samples of new English Cow-grass; medium and lower qualities, however, meet with less attention. There is no change this week in American red Clover seed; and as regards Alsyke, White, and Trefoil, values keep steady. Perennial and Italian Rye-grasses point upwards. An improved business as a result of the recent cold snap must be noted in Blue Peas, Haricot Beans, and Spanish Lentils. Bird seeds, in the absence of transactions, call for no remark. Full prices are asked for both Mustard and Rape seed. New Scarlet Runners, being cheap and good, meet with favour; but more money is asked for Canadian Wonder Beans.

FRUIT AND VEGETABLES.

GLASGOW: *February* 1.—The following are the averages of the prices recorded since our last report:—Apples, per barrel, Canadian, Baldwins, 23s. to 26s.; Greenings, 20s. to 21s.; various, 18s. to 21s.; Americans—Californian, Newtown Pippins, 11s. per case; Lemons, Messina, 6s. to 8s. do.; do., Palermo, 7s. to 9s. do.; Grapes, home, 1s. 3d. to 1s. 9d. per lb.; Oranges, bitter, Seville Bitter, 11s. per box; Oranges, Jaffa, 7s. 6d. to 8s. per case; do., Valencia, ordinary, 420's, 5s. to 6s. do.; do., fine selected, 6s. 6d to 7s. do.; do., large, 5s. to 8s. do.; do., extra large, 9s. to 12s. do.; do., large, 714's, 6s. 6d. to 7s. 6d. do.; Onions, Valencias, 4's, 10s. to 10s. 6d. per case; do. 5's 11s. to 12s. do.; Tomatos, Teneriffe, 3s. do.; Cabbage, Savoys, 1s. 3d. to 1s. 9d. per dozen; Cauliflowers, 1s. 6d. to 2s. do.; Parsnips, 3s. 6d. to 4s. per cwt.; Herbs, 1d. to 2d. per bunch; Mint, green, 6d. do.; Leeks, 1s. 6d. to 2s. 6d. per dozen bunches; Parsley, 1s. 6d. to 1s. 10d. per stone; Potatos, best, 5d. to 6d. do.; Carrots, 2s. to 4s per cwt.; Artichokes, 1s. 6d. do.; Cucumbers, 9d. to 1s. each; Horseradish, 1s. 9d. to 2s. per bundle; Mushrooms, 1s. to 1s. 3d. per lb.; Beetroots, 6d. to 7d. per dozen; Brussels Sprouts, 1s. 3d. to 1s. 6d. per stone; Turnips, large, 2s. 6d. per dozen bunches; Sea Kale, 1s. 9d. to 2s. per bunch.

LIVERPOOL: *February* 1. — *Wholesale Vegetable Market*:—Potatos, per cwt., Giants, 2s. 2d. to 2s. 4d.; Main Crop, 2s. 6d. to 3s. 2d.; Bruce, 2s. 4d. to 2s. 8d.; Turnips, 8d. to 10d. per dozen bunches; Swedes, 1s. 2d. to 1s. 4d. per cwt.; Carrots, 2s. 9d. to 3s. 3d. do.; Parsley, 8d. to 1s. per dozen bunches; Onions, English, 6s. 3d. to 7s. per cwt.; do., foreign, 5s. to 5s. 9d., do.; Cauliflowers, 1s. 9d. to 3s. per dozen; Cabbages, 8d. to 1s. do.; Celery, 8d. to 1s. 6d. do. *St. John's*:—Potatos, 10d. to 1s. per peck; Grapes, home, 2s. 6d. per lb.; do., foreign, 8d. do.; Pines, home, 5s. to 6s. each; Cob-nuts, 6d. per lb.; Asparagus, 1s. to 3s. per bundle; Cucumbers, 1s. each; Mushrooms, 1s. 3d. per lb., and basket.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending January 28, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.		
	s.	d.	s.	d.		s.	d.
Wheat	34	6	26	7	—	7	11
Barley	27	8	27	9	+	0	1
Oats	17	2	17	0	—	0	2

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.					Rainfall.			Bright Sun.	
	Above (+) or below (–) the Mean for the week ending January 28.	Accumulated. Above 42° for the Week.	Accumulated. Below 42° for the Week.	Accumulated. Above 42°, difference from Mean since January 1, 1899.	Accumulated. Below 42°, difference from Mean since January 1, 1899.	More (+) or less (–) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	4 –	0	57	– 19	– 13	10 –	20	5·4	30	17
1	6 –	0	76	– 24	+ 7	5 –	.1	3·7	34	20
2	2 –	0	43	+ 20	– 54	1 –	18	2·2	26	16
3	2 +	4	28	+ 53	– 107	3 –	19	2·1	60	32
4	2 –	0	43	+ 39	– 85	4 –	20	3·4	40	24
5	0 aver	6	25	+ 63	– 112	6 –	19	2·9	59	29
6	5 –	0	53	+ 3	– 19	12 –	22	6·1	30	16
7	3 –	0	40	+ 37	– 61	5 –	20	4·8	36	21
8	3 –	0	29	+ 48	– 70	6 –	21	6·7	56	22
9	4 –	0	40	– 1	– 6	5 –	22	3·9	47	23
10	3 –	5	30	+ 30	– 27	7 –	22	5·8	45	25
*	1 –	10	6	+ 96	– 44	6 –	21	4·7	48	20

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

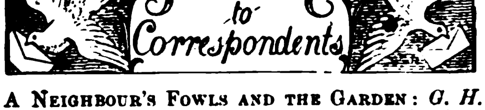
The following summary record of the weather throughout the British Islands for the week ending January 28, is furnished from the Meteorological Office:—

"The *weather* was mild, unsettled, and rainy at the commencement of the period, but soon became much colder, dry, and very fine generally. Over the north of England and the south of Scotland, however, a good deal of fog or mist was experienced.

"The *temperature* was much lower than that of any previous week during the present winter. In 'England, E.,' it was 2° above the mean average, and just averaged it in 'England, S.,' but elsewhere it ranged from 1° below the normal in the 'Channel Islands,' to 4° below in 'Scotland, N.,' and 'Ireland, N.,' and to 6° below in Scotland, E.' The highest of the maxima were recorded on the 22nd, and ranged from 55° in the 'Channel Islands,' and 54° in 'England, E. and S.,' and to 45° in 'Scotland, N.' The lowest of the minima, which were recorded during the middle or latter part of the week, ranged from 10° in 'Scotland, E.' (at Braemar), 12° in 'Scotland, N.,' and 15° in 'Scotland, W.,' to 28° in 'England, S.,' and to 32° in the 'Channel Islands.'

"The *rainfall* was less than the mean in all districts. The fall over the greater part of the Kingdom was very slight, and took place on the 22nd or 23rd.

"The *bright sunshine* was greatly in excess in all districts. The percentage of the possible duration ranged from 26 in 'England, N.E.,' and 30 in 'Scotland, N. and W.,' to 45 to 47 in Ireland, 56 in 'England, S.W.,' 59 in 'England, S.,' and 60 in 'England, E.'"



A **Neighbour's Fowls and the Garden**: *G. H.* The law does not allow you to kill the fowls, these being domestic animals. Your proper course, after doing what is required, by fencing, &c., to keep out the birds, is to warn the owner, and if the depredations still continue, to sue him for the amount of damage done. A little friendly remonstrance would, we should suppose, suffice to abate the nuisance.

Books: *Charles Brown.* The latest we know of is Dr. Udo Dammer's *Palmenzucht und Palmenflege* (propagation and cultivation of Palms), published by Trowitzsch und Sohn, Frankfort. It was reviewed in these columns Feb. 5, 1898.

Buck-wheat: *E. B.* Ordinary Buck Wheat is, botanically, Polygonum or Fagopyrum esculentum, a European and northern Asian plant, growing to an elevation of 14,000 feet. It can be raised as a first crop on newly broken-up sandy land, but not too dry heath land, and may be ploughed in as green manure. Growth being extremely rapid, it can be grown at a great elevation, and in climates where the summers are short. In Norway it grows to lat. 67° 56′. The grain can be made into palatable food by boiling or baking, and it is good in meat-soups, used similarly to pearl-barley. On very rich soil the plant yields much foliage, but less grain, than on poor soil.

Caper Bush: *W. L. L.* The plant is too tender for outdoor culture in this country. In the south of France the plant is extensively cultivated out-of-doors. The young berries, preserved in salt and vinegar, form the capers of commerce. The plant, which is a trailing bush, would grow in the greenhouse, and outside against a warm wall, as at Kew and the Oxford Botanic Garden.

Drain from Stables: *Constant Reader.* To enable the drain to clear itself, a fall of not less than 2 inches in a yard run would suffice, and this for half the distance traversed, that is, to about the beginning of the steep descent of the road would involve digging the trench ten feet deep at the lowest part, and gradually working up to the stable floor. Down the descent from the point where the bottom of the drain comes to within 1½ feet of the surface, the drain may generally follow the fall of the road at a depth of 1½ or 2 feet. Ordinary drain-pipes cannot be recommended, for however well they may be laid the sewage will escape into the ground at the joints, and in course of time cause a nuisance; iron-pipes, or glazed earthenware-pipes with collars, which can be filled with cement are preferable, especially the first named.

Dyed Flowers in a Wreath: *Irvine.* A Gnaphalium, or similar Composite, deeply stained with violet dye.

Liliums, Tuberoses, &c.: *A. S. W.* There appears to be no disease affecting the one or the other, and the failure must therefore be sought in some of the details of the cultivation afforded them being unsuitable. Failure in respect of Tuberoses very frequently arises from the fact that the tubers make considerable top-growth before there are sufficient roots formed to support it. As in the case of most bulbous plants that are subjected to such severe drying-off as are Tuberoses, very great care is needed to prevent top-growth bring excited thus prematurely, and until roots are somewhat plentiful very little water indeed should be afforded the plants. If the pots be plunged in a higher temperature than that of the atmosphere it will be a great advantage. In the matter of Lilium lancifolium var. Harrisii, we believe the trouble to be due to a check to growth at a time when the flower-buds had just formed. Perhaps you may be able to detect how this has arisen.

Lime, Nitrate of Soda, and Sulphate of Ammonia, &c.: *T. E. S.* As you omit to state the kind of soil to which the above substances are to be applied, we may say briefly that lime is most beneficial on land containing much vegetable matter—such, for instance, as peat, and, with the sulphate of iron nearly always present in such soils, decomposes them, and combining with the liberated sulphuric acid evolved, forms sulphate of lime—a valuable fertiliser. Clay soil is rendered more friable, and not so liable to be baked in the summer. Lime consolidates sandy soils, causing a greater retention of moisture. The quantity of quicklime per acre may range from 100 bushels to 400 bushels, depending on the depth it is ploughed in—the more the deeper. As a rule, for surface-dressings to be carried to the roots by rain, it is better to afford mild dressings at intervals of a few months, but not during hot weather. Lime used with nitrates would be a wasteful practice. Common salt is better, in the proportion of two of lime to one of salt, and applied at the rate of 40 bushels per acre. Sulphate of ammonia should be applied to orchards in just sufficient quantity to produce healthy and vigorous growth without causing over luxuriance. Potash (nitrate of) is a good manure for almost all kinds of fruits, but it should not be used in greater quantity than 1½ cwt. per acre; but carbonate and muriate of potash may be afforded in the way of wood-ashes, especially those of green wood, applied at the rate of 40 bushels per acre.

Moss on Lawns: *H. G.* When the mossiness is not due to lack of drainage, scratch off as much of the moss as possible with an iron rake, then dress with wood-ashes made from green trimmings and branches of trees and shrubs. In the month of April prick up the bare spots, and spread loam over them, sowing lawn-grasses and fine Clovers over the loamy patches, raking the seeds in and rolling the ground. When the drainage is bad, this must be seen to. Rubble drains 3 to 4 feet deep are better than pipes or tiles if there are trees and shrubs near to or on the lawn.

Names of Fruits: *J. D.* The specimen is not sufficiently good. Send earlier next season.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. E. K.* Probably a species of Zanthoxylum, specimen insufficient.—*H. P.* 1, Acacia armata; 2, A. saligna; 3, Veronica salicifolia; 4, Daphne odora; 5, Eupatorium ageratoides.—*H. H. T.* A very handsome flower of Cattleya Trianæi.—*G. M., Arbroath.* Send when in flower; 2, Toxicophlæa spectabilis, otherwise, Acokanthera spectabilis.—*M. R. M.* The plant you mention is probably mentioned as Cattleya guttata Leopoldi. It is a very easy plant to grow and flower. It usually blooms in summer.—*P. P.* Richardia africana, so-called Arum Lily, because it is not an Arum, and certainly not a Lily! A double spathe is not unusual.—*Ajax.* It is difficult, and sometimes impossible, to name small scraps of Conifers without cones. 1, Pinus insignis; 2, Abies Pinsapo; 3, A. nobilis; 4, A. Nordmanniana; 5, Pseudotsuga Douglasii; 6, perhaps Cedrus Deodara.—*M. C., Rothesay.* Petasites (Tussilago) fragrans, the Scented Coltsfoot. See *Bot. Mag.*, t. 1338.

Orchid Collectors: *Gaspary.* These persons are usually sent out by great nursery firms, and directors of botanical gardens, and they are usually intent on obtaining certain species or new species of Orchids. The ordinary resident collector or trader cannot be depended upon to send any plant that is likely to live, or which is worth cultivating. Far better obtain established plants of known species from European firms.

Palm-leaf diseased: *G. B.* The leaf sent is affected by a fungus, Pestalozzia phœnicis, which was figured and described in the *Gardeners' Chronicle*, Oct. 4, 1884, p. 429. Any of the usual remedies against parasitic fungi may be employed.

Palm Seed: *C. B.* Sow forthwith in pots of sandy loam, singly in small pots, if not many are sown, otherwise from ten to twenty in 6-inch pots. The seeds must be kept close in a temperature of 65° to 70°.

Communications Received.—W. Camm.—W. C.—Dr. Christ, Bâle.—W. G. S, Leeds.—R. N.—J. L.—G. B. M.—L. Contich.—F. K.—D. R. W.—E. B. T., Florida.—E. R., Ghent.—C. B.—E. Whittall, Smyrna.—H. Porter.—J. Macers.—E. M.—W. Horne.—R. D.—W. H. Y.—W. R.—Wild Rose.—J. J. W.—Robert Craig.—Charles Joly.—J. Burtt Davy, California.—Traveller—J. R. B.—Novice.—Jas. Lee.—A. H.—J. W. M.—I. W. F.—G. Thomas.—E. J. L.—G. H.—R. M. R.—J. G. B. & Co., next week.—T. F. L., next week.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation, *and that it is preserved for reference in all the principal Libraries.*

THE
Gardeners' Chronicle
No. 633.—SATURDAY, FEB. 11, 1899.

SOIL *VERSUS* CLIMATE IN THE CULTURE OF ROSES.

BEFORE entering upon this subject, let me say that I have solely in view what are called exhibition Roses, the successful cultivation of which has so materially advanced the culture of the national flower in all its branches, and the subject of enquiry is this—whether the goodness of the soil or the mildness of the climate has most to do with this success? I know that very varying opinions are held, and my own opinion, which may be taken for what it is worth, has always been that much more depends on the climate than on the soil.

Two circumstances have brought it more prominently before me of late, one has been the publication of an interesting *brochure*, by Lord Brougham and Vaux, *Roses of Cannes*, an attempt not to enter into details of Rose culture, but simply to give the Rose-loving public an idea of what Roses are in that favoured locality. Lord Brougham has, as your readers have been told, made himself famous for his success in flowering for the first time in Europe that grand single-flowered species, Rosa gigantea; but the book is mainly occupied with the Roses he grows at Cannes, somewhat in the style of the chapter on "Manners and Customs" in Mr. Foster-Melliar's classic book on the Rose.

The other circumstance is, that Mr. Alexander Hill-Grey, a most enthusiastic grower, has placed in the hands of the committee of the National Rose Society the sum of £5 5*s.* to be by them expended in obtaining an analysis of Rose soils from some of the best Rose-growing districts in the country. We may thus be enabled to see what charm there is in the various "Rose" soils.

But it seems to me, in my ignorance, that there is a preliminary question of no small importance. Roses are but little grown on their own roots; they mostly have foster-parents—the Briar (whether wild or cultivated, seedling or cutting), the Manetti, the La Grifferaie, &c. Surely it ought to be a question whether it is the soil that suits these various stocks that ought to be considered. Take, for instance, the Manetti: this has been much condemned of late years, and yet but for its introduction Rose-growing would hardly have attained its present dimensions; but if the Manetti is planted in what one has always regarded as a true Rose soil—viz., a rich unctuous loam, it acquires such vigour that, without very careful management, it is apt to overpower the Rose budded on it, especially if the latter have any delicacy of constitution.

On the other hand, if the soil is light and gravelly, I believe Roses will do as well on it as on any stock; and I have before my mind a garden where the portion devoted to Roses was of this character, and yet the flowers staged from it generally occupied a foremost place at exhibitions. May it not be, then, that the stock has much more to be considered than the Rose?

Again, if we take the Briar: of late years we have had the cultivated seedling Briar, and the Briar cutting introduced as the stock for dwarf Roses. The seedling Briar spreads out its roots, and is therefore generally considered to be better for lighter soils; while the Briar cutting sends its roots deeply down, and so is better adapted for a true Rose soil. I have mentioned all these matters because, as I have said, the stock has a more important part to play than the Rose. It is manifest that if this be true, the cultivator has very much the matter in his own hands, and he will be regulated in his choice of stocks by the character of his soil, but he has no power whatever over the climate—this he must be content to take as he finds it.

There are some parts of the kingdom where it is impossible to grow Tea Roses in the open, owing to the coldness and bleakness of the situation; while there are others, as in some parts of Cornwall, where it is impossible to grow hybrid perpetuals with any degree of excellence. As the late Hon. and Rev. J. T. Boscawen used to say to me, "I can grow Lapageria rosea and Camellias in the open air, but I cannot grow a decent Marie Baumann." This does not always depend on latitude, for in the south-west of Scotland, where the influence of the Gulf Stream tells, I have seen as grand plants of Roses as I ever saw in my life: I have seen a stand of twelve prize blooms of La France taken off one bush; but get further inland, and you will find what a different matter it is. Go to Perthshire, for instance, where Mr. Hill-Grey for years pitched his tent and tried to grow Tea Roses, but he was so entirely beaten by the climate, that he struck his tent, and came down south, bent upon obtaining a place where he could grow them; and we all know how successfully he has accomplished this in the genial climate of Bath.

I have already alluded to Lord Brougham's description of the manner in which Tea Roses succeed in the Riviera; we have often been told from competent eye-witnesses something of the same kind. Some years ago, for instance, the late Dr. Henry Bennet gave an interesting account in the *Rosarian's Year Book* of his experience there in Rose-growing; while Mr. Alexander Hill-Grey has, in the same publication, detailed the growth of Chromatella, or Cloth of Gold, in the Azores. But neither of them has entered so much into detail as Lord Brougham, and some of his descriptions will astonish growers of Tea Roses in this country. He gives, for instance, an illustration of Marie Van Houtte. The plant figured is seven years old, and covers a piece of ground 70 feet in circumference! We have often seen fine plants of this variety in England, but they are all dwarfs and pigmies in comparison with this one. Of Chromatella, or Cloth of Gold, although he thinks they are distinct, he gives a glowing description of a plant he saw years ago which had taken possession of an Olive-tree, which it had covered with its shoots and beautiful flowers, although he adds, strangely enough, the Rose does not appear to flourish there as it did formerly. Of Papa Gontier, he says that it attains the height of 25 feet, and a diameter of 7 feet, and that a couple of years suffices to turn a single plant into a large bush or tree.

I might multiply instances illustrating the effects of the genial climate of the South of France, and establishing my point that climate has far more to do with the successful culture of the Rose than soil.

Now, let us look to our own country. East Anglia has generally been regarded as one of the most successful centres of Tea Rose growing in the kingdom, and it has the driest, sunniest climate in England; and when my friend, the Rev. F. R. Burnside, lived in the mild and damp climate of Herefordshire, he could only grow his Teas successfully by planting them in an elevation of some 300 or 400 feet above sea-level.

Hybrid perpetuals are, perhaps, not so much influenced by climate as Teas and Noisettes, though they are unquestionably so to some extent. I have seen gardens where the soil was poor in the extreme, but where, the climate being good, magnificent results were obtained. That ardent rosarian, the late Mr. Geo. Baker, at Reigate, made, with a great expenditure of time and money, a splendid Rose-garden out of very unpromising materials. I do not think he would have ventured on this but for the assurance that he had, that the salubrity of the district would be all in his favour. Another proof of the correctness of my position is, the comparative scarcity of amateur growers in the North, and the manner in which they are handicapped in the annual contests of the Rose. So much is this the case, that at Rose-shows held in the North, a much greater number of the best prizes is awarded to southern growers; and this year no northern show is to be held at all, because no place is willing to run the risk of incurring the responsibility, financial and otherwise, of holding a Rose exhibition.

I have thus endeavoured to give the pros and cons in this disputed matter. I am not an exhibitor, and have no personal interest in the question; and I should be very glad if the observations that I have made should lead to a further discussion upon the subject. On this, as on every point connected with gardening, opinions will differ, and nothing but good can result from ventilating them. *Wild Rose.*

NEW OR NOTEWORTHY PLANTS.

PASSIFLORA "MARGARET WILSON."

THE Passion-flowers form, in many respects, a remarkable group of flowering plants. The structure of the flower attracted notice long ago, and suggested the adoption of a symbolical designation for the order. Many of the very numerous species, all exotic, have found their way into cultivation. The most familiar one is the widely-grown Passiflora cœrulea, a south Brazilian plant, with constitution so hardy as to enable it to withstand, with a little shelter, the winters of the south of England, and the winters of Scotland also when they are open. The white variety of this species, Constance Eliott, differs from the type in lacking the "cœrulean" colours of the radiating coronal filaments, the petals and sepals being almost the same in both. The leaves of P. cœrulea are commonly 5-lobed, the branches sub-terete, obscurely angled, and the stipules large and aristate. The flowers are 3 to 3½ inches in diameter, the perianth flat or recurved, and the coronal rays straight. The odour is faint and unpleasant.

In another section of the genus, the species have leaves simple and ovate, branches quadrangular and winged, and stipules small and tapering. P. alata and P. quadrangularis are well-known warm-greenhouse examples of this section.

The peculiar traits of certain species evidenced by their reluctance to set seed with their own pollen, and yet be readily susceptible to cross-fertilisation, have engaged the attention of skilled observers. Among the numerous hybrids secured, there is one of special interest in the present connection, viz., P. Buonapartea. This beautiful

Passion-flower is commonly understood to be a hybrid between the above-named quadrangular-stemmed species. The perianth is 5 inches in diameter, fleshy, deep red, and never flattened out. The long wavy coronal rays form a deep basket, barred and dotted with "red, white and blue," enclosing the conspicuous reproductive organs. To add to its attractiveness, the odour is powerful and pleasant.

The new hybrid (fig. 36, p. 89) is from P. Buonapartea, fertilised by P. cœrulea. One seed only germinated out of many taken from a fine fruit. While bearing resemblance to P. Impératrice Eugénie and others derived by crossing P. alata or P. quadrangularis with P. cœrulea, it is quite distinct from, and in many features, bears very favourable comparison with these. Its fine lilac-rose colour, its pleasant and not too penetrating perfume, its shapely leaves, and very robust and floriferous habit, render it a desirable addition to the list of indoor climbers.

It possesses many characters of botanical interest, its hybrid nature being very manifest in every structural, even microscopical, detail. It may suffice at present to mention one interesting feature, in which ocular demonstration is afforded of a remarkably precise solution of an arithmetical problem. The leaves of the one parent have, so to speak, one lobe, the other five lobes, and the hybrid three. The result of the blending of parental characters can be expressed arithmetically, thus,

$$\frac{5+1}{2} = 3.$$

Description.—Young stem and branches distinctly 4 to 5-angled, often purplish; leaves glabrous, three-lobed; petiole 1½ to 2 in. long, bearing four glands, two of which are placed near the top, and the other two about mid-length; lamina, 5 to 6 in. long, 7 to 8 in. broad, base cordate, lobes ovate-acute notched near the angles; stipules, ¾ inch long, ½ inch broad, oblique, serrate, acuminate; peduncle 1 to 1¼ inch long; bracts foliaceous, ovate-cordate, crenulate, 1 inch long. Flowers, 4¾ to 5 inches diameter, odoriferous; perianth lilac-rose, sepals oblong, fleshy, cuspidate; petals oblong, spreading, paler underneath, often cucullate at the apex; faucial corona of four series of filaments, the outer double series alternate, eighty to ninety-five in number and 1½ to 1⅝ inch long, deep purple-brown at base, further up banded with pure white, the distal-half bright purple-blue, often undulate, tip whitish, glandular; the inner series ½ inch long, straight or slightly bent, very deep brown purple; median corona forming below a membranous red tube inclining towards and enclosing the base of the gynandrophore, receding above in a whorl of short, almost black filaments; the infra-median annulus, fleshy, incurved; basilar corona, a cup-shaped dilatation of the base of the gynandrophore; anthers somewhat aborted; pollen deficient; ovary elliptical, light green; stigmata, purplish-drab. *John H. Wilson, D.Sc., St. Andrews.*

KEW NOTES.

Coleus thyrsoideus.—Note of the introduction of this new species of Coleus was made in the *Gardeners' Chronicle* last February, p. 79, on its flowering at Kew. It was then described as a showy blue Labiate which was likely to prove a useful winter-flowering plant for the greenhouse. Several plants raised from cuttings struck in spring and grown on in a warm greenhouse in summer have formed shapely bushes 2 feet high and wide, and in December they developed terminal thyrsoid panicles 9 inches high of flowers of the brightest gentian-blue colour, which have been an attraction for nearly two months, and are still good. I know no plant that is more effective in the winter; certainly no plant at Kew has been more admired. No doubt in a clearer atmosphere than we have at Kew in winter this plant would be better even than it has been here. It is worth the attention of all who are interested in winter-flowering greenhouse plants. The leaves are bright green, coarsely serrated, and about 3 inches long and wide.

Pycnostachys urticifolia.

This is another handsome blue-flowered Labiate from British Central Africa, whence numerous interesting plants have lately been introduced to Kew, mainly through the energy of the botanical department recently established at Zomba. The Pycnostachys was, however, first sent home by Dr. Livingstone, who sent seeds of it to Messrs. Backhouse, of York, in 1861, from which plants were obtained which flowered in January, 1863, and were figured in the *Botanical Magazine*, t. 5365. It does not appear to have become established in gardens, notwithstanding that it was then described by Sir William Hooker as "well worthy of cultivation from the size and beauty of its flower-spikes. We are much mistaken if it does not become a great favourite in our gardens before long." •Grown in pots at Kew it was not a success, but planted in the border in a sunny position in the new Mexican-house, it has formed a tall, loose shrub, with long leafy branches, not unlike a big Nettle, as its specific name suggests, whilst each branch is now terminated by a Lupin-like head of rich mazarine-blue flowers.

Lobelia Rhynchopetalum.

Good seeds of this, the "Gevara" of Abyssinia, have lately been presented to Kew by A. B. Wylde, Esq. The only plant I ever saw of it used to be in the Kew collection, but it died about ten years ago. It is by far the most remarkable of the woody-stemmed Lobelias, of which the Indian L. excelsa (nicotianæfolia) is often met with in gardens, and which develops a tall stem, like a huge Cabbage-stalk, 6 feet or more high, bearing lanceolate leaves a foot or more long, and an erect branched raceme, a foot long, of pale lilac flowers. It flowers almost annually in the houses at Kew. L. Rhynchopetalum is, or was, a slow grower under cultivation. It is described in the *Flora of Tropical Africa* as a tall woody plant, with the habit of a Palm, having a stout hollow unbranched stem, 12 to 15 feet high, naked in the lower part when in flower, densely leafy towards the top, and terminating in a long simple dense spiciform bracteate raceme of greyish-violet flowers, clothed with a felt-like tomentum, each 2 to 3 inches long. It used to be known as Rhynchopetalum montanum Mr. Wylde says it grows on the high mountains of Abyssinia, where frost and snow occur, and thinks it might therefore prove hardy in England.

Begonias from China.

The genus Begonia is but poorly represented among the plants discovered in China, only nine species being enumerated in Hemsley's *Index Floræ Sinensis*, and of these B. Evansiana (discolor) is the only one known here as a garden plant. About half a dozen promising additions have, however, lately been made by Dr. Henry, who sent seeds of them from Tonking to Kew, from which plants have been raised. One of these has lately flowered, and it proves to be B. sinensis. It is a slender species about a foot high, with herbaceous stems, bearing pale green leaves, like those of B. Evansiana, but smaller. The flowers in erect axillary racemes. are nearly an inch across, their colour is bright pink. In habit the plant resembles B. gracilis. The other plants raised from Dr. Henry's seeds are quite distinct from all other cultivated Begonias: one has crowded digitate leaves; another large velvety green, oblique-lobed leaves; another is a large bushy plant 5 feet high. A Chinese Begonia, called fimbristipula, which used to be in the Kew collection, is remarkable for the fragrance of its flowers. It is worth re-introduction; probably Mr. Ford, of Hong Kong, could send it. *W. W.*

WHAT CONSTITUTES ODONTOGLOSSUM WILCKEANUM?

Recently, an Odontoglossum bloomed by Mr. R. Brooman White, at Arddarroch, has been noted by Mr. Rolfe (*Orchid Review*, January, 1899, p. 10), the description of which again raises a question discussed in these columns in 1896 (November 21, p. 632), and followed up by Mr. Rolfe in *Orchid Review*, March 1897, p. 73 (*et seq.*). Mr. White's new arrival will, I hope, set at rest all doubts that may be left in the minds of our "experts." It is a pure yellow, spotless form of O. Wilckeanum, which can be imagined from the following description:—Sepals and petals pale canary-yellow, spotless. Lip of a deeper shade, which completely spreads over its whole surface. Under the central teeth of the crest is a very small brown mark, and four or five pairs of faint brown lines in the channel below the column. The column is pale creamy-white, having three or four cirrhi on each wing. In form, the flower is like an ordinary narrow crispum, whose sepals and petals just overlap; the petals have the halbert-shaped outline of those of luteo-purpureum; the lip is oblong, with nearly parallel sides, which are slightly contracted one-third up from the short stiff apiculus.

The important botanical feature is the crest. The central teeth are bright yellow, short, and sharply pointed; the first three pairs of filaments are extended beyond the plate, though far less than in many blotched Wilckeanums, which is natural, and to be expected, because this variety has more than half crispum parentage in its constitution, as is proved by the "total absence of spots." Had I first published this variety, I should have named it "immaculatum," as this varietal name would have clearly explained its "total absence of spots," all Wilckeanums being more or less yellow; but Mr. Rolfe, who publishes it (*Orchid Review*, January, 1899, p. 10), follows on with Reichenbach's varietal name, which he gave to it in 1880 (*Gardeners' Chronicle*, xiii., 41, and 232), when he erroneously called it "crispum flaveolum." Afterwards, the late Mr. George Hardy's plant was figured in the *Orchid Album*, pl. 43, showing it to have unspotted sepals and petals, but three or four small brown spots in the lip. As some may not see the *Orchid Album*, I quote Mr. Rolfe's note *in extenso*:—

> "Odontoglossum Wilckeanum flaveolum.
>
> "A very pretty Odontoglossum is figured at t. 43 of the *Orchid Album*, under the name of O. c. flaveolum, Rchb. f. A very similar form has appeared in the collection of R. Brooman White, Esq., of Arddarroch, but a comparison with the numerous forms of O. Wilckeanum shows so many points of resemblance as to leave little doubt that it also belongs to this polymorphic hybrid. The general resemblance to O. crispum, and the total absence of spots, has probably led to its being considered a yellow form of that species; but the shape of the lip, the lateral teeth of the crest, the narrow toothed column wings, as well as the shape and ground-colour of the sepals and petals, all show an approach to O. luteo-purpureum. Indeed, it is nearer to O. Wilckeanum sulphureum, Rchb. f., than to O. crispum, and I suspect that all the so-called yellow forms of O. crispum are of hybrid origin."

Here Mr. Rolfe is clear in his new definition of Wilckeanum, even though they have "a general resemblance to O. crispum, and total absence of spots;" therefore I presume that now he would possibly class as a Wilckeanum a "so-called yellow form of crispum" that agreed with his new definition, and had also a great many spots and blotches. He now tardily admits, though in a manner that appears as if he had never doubted the facts, which have been stated by the writer both in and out of print for years past, and strongly contested by Mr. Rolfe in the *Orchid Review*. He even now only "suspects" it. It has taken him nearly two years to advance from the position of denying a yellow, heavily-spotted form to be a Wilckeanum (*Orchid Review*, March, 1897, p. 74), to that of "leaving little doubt" that a yellow unspotted form is one. When will he feel sure that all these yellow and spotted forms are Wilckeanums?

In discussing "Golden Queen" (*Orchid Review*, March, 1897, p. 74), and commenting on my opinion that it was a Wilckeanum, he said:—"There are both yellow and spotted forms in which I cannot detect the slightest deviation from the typical O. crispum in its essential characters." Clearly from this Mr. Rolfe then thought that colour was not an "essential character." Now he evidently considers it is, for he says in regard to the *Orchid Album* plate, "General resemblance to O. crispum, and the *total absence of spots*" (the italics are mine. Dr. B. C.), "probably led to its being considered a yellow form of that species."

Inversely, this proves him to think at present that a "yellow ground colour" even without spots, is Wilckeanum; perhaps with the spots added he would be sure. It may be inferred from this that he also "suspects" a true crispum has no spotting

What has led him to change his definition, and "suspect that all the so-called yellow forms of O. crispum are of hybrid origin," for anent the "Golden Queen," he says :—"At the first glance I took to be a form of O. × Wilckeanum, but on *careful examination*" (italics are mine. DE B. C.), "failed to find a single character that could be ascribed to the influence of O. luteo-purpureum." Would he now, after a careful re-consideration, come to the same conclusion, that the "Golden Queen," which has "yellow ground colour," "more prominent lateral teeth of the crest," and numerous spots and blotches, is still a crispum, and not a Wilckeanum? These teeth and filaments are far more pronounced in "Golden Queen" than in Mr. White's variety; and in the photograph that Mr. Rolfe mentions (*Orchid Review*, May, 1897, p. 143), taken by Mr. Stevens from the dried bloom which I speak of on the same page, they are better seen than in the figure in the *Orchid Review* (April, 1897, p. 113).

It is often stated that no one but a botanist should name any plant, more especially natural hybrids and "forms," but if the botanist or "expert" does it in this way, we are wise in doing all we can to correctly name them without their aid. Instances could be multiplied *ad nauseam*, to show that it is quite time that "the Orchid Society" was founded, where the *cult* could be centralised, and reliable *data* collected. Thirteen years ago I said the same thing; the need of it is now a thousandfold greater. *De B. Crawshay.*

STINSFORD HOUSE, DORCHESTER.

INDUCED by a recollection of the beautiful blooms of the Catherine Mermet, White Lady, Maréchal Niel, Hon. Edith Gifford, and other Roses, staged by L. Parry, Esq., at the National Rose Society's show at the Crystal Palace, in July of last year, I called late in the summer for a look round the garden whence so many good flowers had come. I was fortunate in finding Mr. Parry at home, and in his Rose-garden attending to very important requirements of some of the younger plants. He, however, relinquished his work kindly, and showed me his garden and greenhouses, gossiping the while on his recent successes in the field of Rose-shows. To have secured a place in the winning-stands was itself a feat of which anyone might be proud, but to win premier honours was a pleasure indeed, and a grateful reward for his continued efforts.

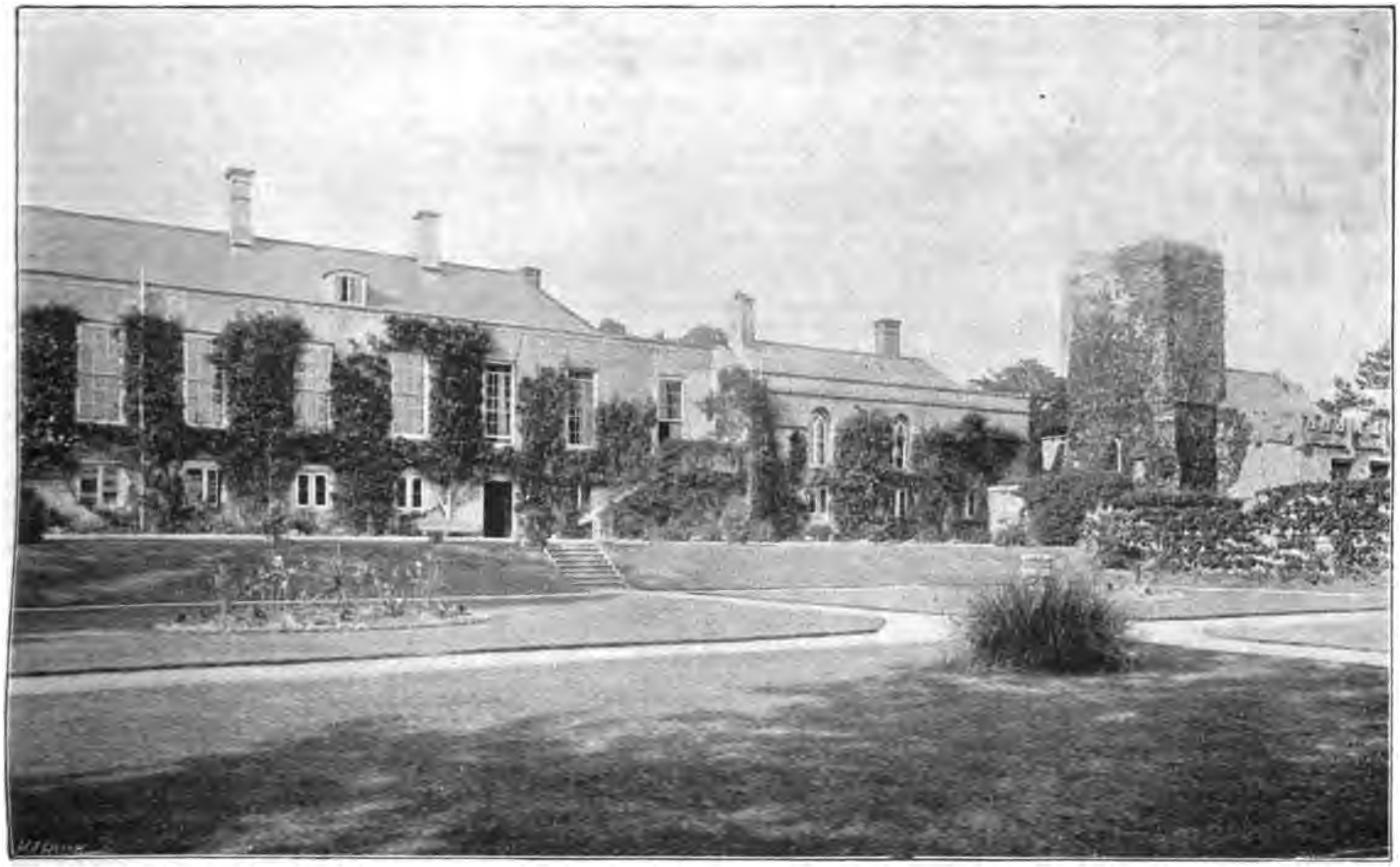


FIG. 34.—STINSFORD HOUSE, DORCHESTER, THE RESIDENCE OF L. PARRY, ESQ.

The rose-quarters are not extensive, but the position is very suitable, being closely sheltered, and yet not too much so, and in the lower part of the garden there is a pool of water. The soil, in consequence of the proximity of this body of water, is constantly moist; yet, the subsoil being gravelly, and the staple light, it is not unduly so. Many of the bushes were still in flower, including the varieties Caroline Testout, Her Majesty, Madame Lambard, Marie van Houtte, and others. The blooms were, although fine in colour, in form and substance inferior to the earlier ones. The operation Mr. Parry was engaged in was the re-budding of stocks, some few of the early-budded ones not appearing satisfactory, fresh buds were therefore being inserted. The Roses were healthy and promising, and it was anticipated that the display of 1899 would be better than that of 1898.

Herbaceous perennial plants are grown in great variety, among them Tritoma Uvaria in large masses. The illustration of the dwelling-house (fig. 34) shows several large Magnolia grandiflora and yellow Banksian Roses, which together cover nearly the whole of the front. The long, low house, with the church on the right, the tower of which is also covered with Ivy and Roses, present, as our readers will agree, a picture of beauty and repose. The church, which was greatly out of repair, is now restored, and service is regularly held therein. The dwelling-house was in olden times a monastery, the church belonging to the same. The photograph, from which the figure was taken, twelve months ago, does not do justice to the two beds as they appear this year. On these two plots of grass there were about twenty small flower-beds, that were filled with flowering plants the year round, but it was thought that these numerous beds were not so effective as larger ones would be, and so they were turfed over, and an oval bed of good size was made in the centre of each area. These beds were, when I saw them, filled with a mixture of sub-tropical and other plants, the outermost line consisting of the old white Pink, then, of course, out of flower—still, a good plant for such a use. Most of the surface in these oval beds was covered with Alternanthera, while round some of the plants a blue Lobelia was planted. The other subjects consisted of Dracæna indivisa, Grevillea robusta, Cannas, variegated Maize, Bamboos, and near the edge, Begonias and Fuchsias. These beds were in capital condition, the tallest plant about 30 inches high, the others slope gradually to the edge.

Planted in a border in the conservatory, a building situated at the extreme left of the house, and not to be seen in the picture, is a large plant of Acacia dealbata, which from Christmas onwards is covered with the bright yellow blossoms. In some of the other glasshouses good crops of Melons were remarked, one house having the Melon-plants planted in borders 4 or 5 feet below the trellises of wire, and notwithstanding this apparently unsuitable arrangement, they were showing well for a late crop; Earl's Favourite is the variety that Mr. Parry prefers.

In the kitchen-garden a fine Onion-bed was noted, the plants having been raised from seed sown on February 4, under glass, and planted out as soon as strong enough. Alongside were rows of onions sown in the ordinary mode at the usual time, and the difference in favour of the former method was very remarkable, these being 10 and 11 inches in circumference, whilst scarcely one of the other rows was as large as a Walnut. Pears trained, as cordons, were fruiting freely in most cases. Among the Apples so trained was Ribston Pippin, unusually good; also on espaliers, were Blenheim Orange Pippin, Prince Albert, Lord Suffield, Mother, King of the Pippins, Egremont Russet, and Cox's Orange Pippin.

The bush fruit had been abundant, and most of the land so planted is covered in with wire-netting of about 1 inch hexagonal mesh, which provides protection from the small birds. A visit to the ancient church with its mementos of other days, and other services held within its walls, appropriately finished up my trip to Stinchcombe and its gardens. The entire place reflects credit on the gardener, Mr. G. Baker. *W. Swan, Exmouth.*

ORCHID NOTES AND GLEANINGS.

A CYPRIPEDIUM CROSS.

WE have in this cross a singular and interesting flower, possibly a second cross of C. × Leeanum, though in most points it bears a close resemblance to C. Spicerianum. It was sent by C. B. Powell, Esq., The Old Hall, Southborough, who purchased it, together with other unflowered seedlings, from Messrs. Charlesworth & Co., Heaton, Bradford. The upper sepal is white, with a light green base, and a purple band up the middle so far as the green tint goes. In it the most remarkable feature is that the edges of the upper sepal, especially at the base, are folded inward instead of backward, as is usual in crosses of the class. The lower sepal is greenish-white; the petals yellowish with small purple spots; lip whitish, tinged on the face with purple; staminode cream-white, with a raised orange-coloured spot in the centre.

AN ABNORMAL DENDROBIUM TETRAGONUM.

The singular Dendrobium tetragonum, a native of Australia, is an uncommon species, and its flowers produced on short racemes from the slender-based four-angled pseudo-bulbs have always a spider-like appearance, due to their narrow yellow and red-brown segments, 2 inches in length. An inflorescence of one normal and one abnormal flower sent by Mr. W. H. Young, orchid-grower to Sir Frederick Wigan, Bart., at Clare Lawn, East Sheen, presents it in a still more extraordinary guise.

In the abnormal flower, the enlarged and flattened ovary tells of the presence of more than one flower, the segments of which have arranged themselves into a somewhat regular form, giving the appearance of a small sparsely petalled Chrysanthemum. The outer segments are five in number, the inner of four narrow ones similar to petals of a normal character, and a treble labellum, each of the three parts partaking of the form of the normal labellum except that the side lobes are imperfectly developed. In the centre of these are two stigmas, each perfect though not of full size.

STENOGLOTTIS LONGIFOLIA.

Not long since it would have raised a smile if anyone had said that the S. African terrestrial Orchids would ever be grown for providing cut-flowers. Nevertheless, so floriferous and easy to cultivate are Disa racemosa, D. tripetaloides, and the garden hybrids raised from them and D. uniflora, that they are now receiving attention from this point of view. Less likely than the Disas, appeared the Stenoglottis, but for some time past Messrs. F. Sander & Co., of St. Albans, have grown a batch of Stenoglottis longifolia, and they find a ready demand for any number of its elegant sprays of rose-pink flowers. At present a quantity of the plants are in flower at St. Albans. They are pretty pot-plants of various sizes, and their flower-spikes spring from the centres of the handsome tufts of green leaves spotted with purple, some of the larger ones having produced more than twenty spikes.

VARIETIES OF LÆLIA AUTUMNALIS.

Flowers of extreme forms of Mexican Lælias sent by H. Cary Batten, Esq., Abbots Leigh, Bristol, serve to show the beauty and extraordinary range of variety there is in them. Two flowers of L. autumnalis represent the darkest and the lightest of the coloured forms. The dark-crimson flower is the L. a. atrorubens, which is the largest and best coloured type, and a local form fairly constant. L. a. delicata is almost like L. a. alba, its flowers being white with a delicate pearly-pink flush.

The variation in Lælia albida is shown by a flower of the typical form with white sepals and petals, and pale-pink lip; and one of L. albida Stobartiana, in which all the segments are heavily tipped with bright rose-colour, the petals having the colour extended inward in a broad band for two-thirds of their length. Last year the flower was not so richly coloured. *J. O'B.*

EUCALYPTUS IN THIS COUNTRY.

WITH reference to the recent notes in the *Gardeners' Chronicle* on the hardiness of Eucalyptus, I believe that more depends on the situation than on the actual temperature experienced. I have often found them killed in winter when planted in cold or undrained soil, or exposed to North winds, when other trees, raised from the same seed and planted in light, warm soil, have been quite unharmed. I have, during the last twelve years, tried between fifty and sixty species of Eucalyptus at Loch Hourn, in Inverness-shire, opposite to the Isle of Skye, where the climate suits the more hardy species, even though the thermometer falls to zero in severe winters, and the strong Atlantic gales try them much. The average rainfall varies from 90 to 140 inches per annum (31·5 inches fell between December 1 and 29 last); they seem to enjoy a heavy rainfall if planted in a well-drained situation, but a cold, undrained soil is fatal in our climate, though in hot climates some species flourish in wet places. At Loch Hourn, by far the hardiest is E. vernicosa which, Sir Joseph Hooker says, is the smallest of the genus, from 1 to 4 feet high, and only growing on the summit of Mount Fatigue in Tasmania, at an elevation of 4,000 feet. I have tried in vain to obtain seed, as I have only one specimen, a small bush, ten years old, and 2½ feet high, but as last autumn it was covered with flower-buds, I hope to save seed this year. It is evidently a rare species, as the botanic gardens at Hobart, Tasmania, were unable to obtain seed for me, and M. Naudin wrote me that he only knew it from dried specimens; but the Edinburgh Botanic Gardens raised some plants from seed a few years ago. The next in hardiness at Loch Hourn are trees raised from seed of Mr. Balfour's tree at Whittinghame, near Edinburgh, of which there was a description in the *Gardeners' Chronicle*, April 14 and May 19, 1888. I do not think that M. Naudin, who is now undoubtedly the highest authority on the genus, would have pronounced it to be E. urnigera, had he seen the tree itself and seedlings from it, as in his monographs on Eucalyptus he says of E. urnigera, "the leaves always green, never glaucous." Now, the young trees raised from Whittinghame seed are very glaucous, almost a grey-blue colour, becoming dark green as they grow older. I have forty or fifty planted out, and cannot distinguish them from E. Gunni growing close by; they are very similar in foliage, both in the young and adult state, flowers, seeds, and habit of growth. If, as I believe, they are E. Gunni, the slightly greater hardiness may be attributable to their being from Scotch-grown seed, and perhaps this may be even more marked in their descendants. I should say that I refer to E. Gunni raised from Australian seed, as those raised from Tasmanian seed differ much from the Australian variety.

E. coccifera, E. Gunni, and E. urnigera are nearly as hardy, but the foliage and young branches were cut in the severe winter of 1894–95, when for days together the thermometer was at or close to zero, and the sea-loch frozen over for 2 miles. I have now several hundred of these three species planted out on the hill-sides. I believe "cornigera," mentioned by Mr. Ryan, p. 61, to be urnigera [a misprint. ED.]. M. Naudin, to whom I forwarded a branch sent me by Mr. Ryan, pronounces it to be "le veritable urnigera." E. alpina, E. angustifolia, E. cordata, and E. viminalis come next; but E. amygdalina, E. coriacea, E. regnans, E. rudis, and E. resinifera, seem not much more hardy than E. Globulus, which is killed at Loch Hourn by 15° or 20° of frost. E. alpina grows only on Mount William in Victoria, at 4000 feet, where it is a bush 3 or 4 feet high; and at the Botanic Gardens, Melbourne, it was only 12 feet high after twenty-five years; but in Scotland at Loch Hourn and in Arran, it grows faster, and the leaves are far larger than as described by Von Mueller, and of greater thickness. One of mine had flower-buds last autumn. I think that in all the species that have flowered at Loch Hourn the buds show for a year before blooming. E. cordata is perhaps my favourite, its silvery foliage and handsome growth are very striking. Von Mueller gives it as very dwarf, but mine grow quickly; the largest had 4 or 5 feet of its top blown off last summer, and by November the loss was hardly to be noticed. I have also many young trees raised from seed ripened at Abbotsbury in Dorset.

Except the foregoing, I have failed to keep any of the others through an average winter. I raise the seedlings in a cold greenhouse, re-potting them two or three times a year before the pots are filled with roots, and planting out early in summer when two years old. They require careful staking for some years, and the fastenings must be frequently renewed, on account of the rapid growth of the stems; and the bark being easily injured by rubbing against the stake, should be protected. *Robert Birkbeck, 20, Berkeley Square.*

IRIS STYLOSA.

THE photograph from which fig. 35 has been prepared, represents a plant of this species in bloom in the open border at Tremough. I think that readers of the *Gardeners' Chronicle* will agree that this is one of the most valuable Irises we have. Although the plant photographed is only about 18 inches in diameter, it is not unusual for us to gather two dozen flower-buds from it at one time, and scarcely a day passes but we use some of the blooms for furnishing the flower-vases. The plant was in bloom at least a month before Christmas, and promises to continue to flower until the end of February. The pale lavender colour of its flowers is very pleasing. Its perfume is also very delicate and agreeable. In order to obtain the fullest enjoyment from the flowers, they should be gathered whilst in bud, and be allowed to open indoors. This will prevent them being damaged by rain, storms, or slugs. *R. Gill, Tremough, Penryn, Cornwall, Jan. 26.*

FLORISTS' FLOWERS.

CARNATIONS AND PICOTEES IN FRAMES.

WHETHER these be intended for culture in pots, or for planting out in borders, the plants will now require some attention. The soil should be kept just moist and no more. Admit abundance of air to the frames on all favourable occasions, it being very unwise to coddle the plants, and thus encourage weakly growth, and subsequently greenfly. Draw the lights off entirely when the weather is very mild, and war against aphides by fumigating the plants as frequently as is necessary. Leaves that have become yellow, or spotted, should be promptly removed to the fire. Stir the surface-soil to prevent it becoming overgrown with moss. Moss is not so likely to grow, however, if the plants are given sufficient fresh air ; nor is frost so liable to injure the plants when the foliage as well as the atmosphere is dry.

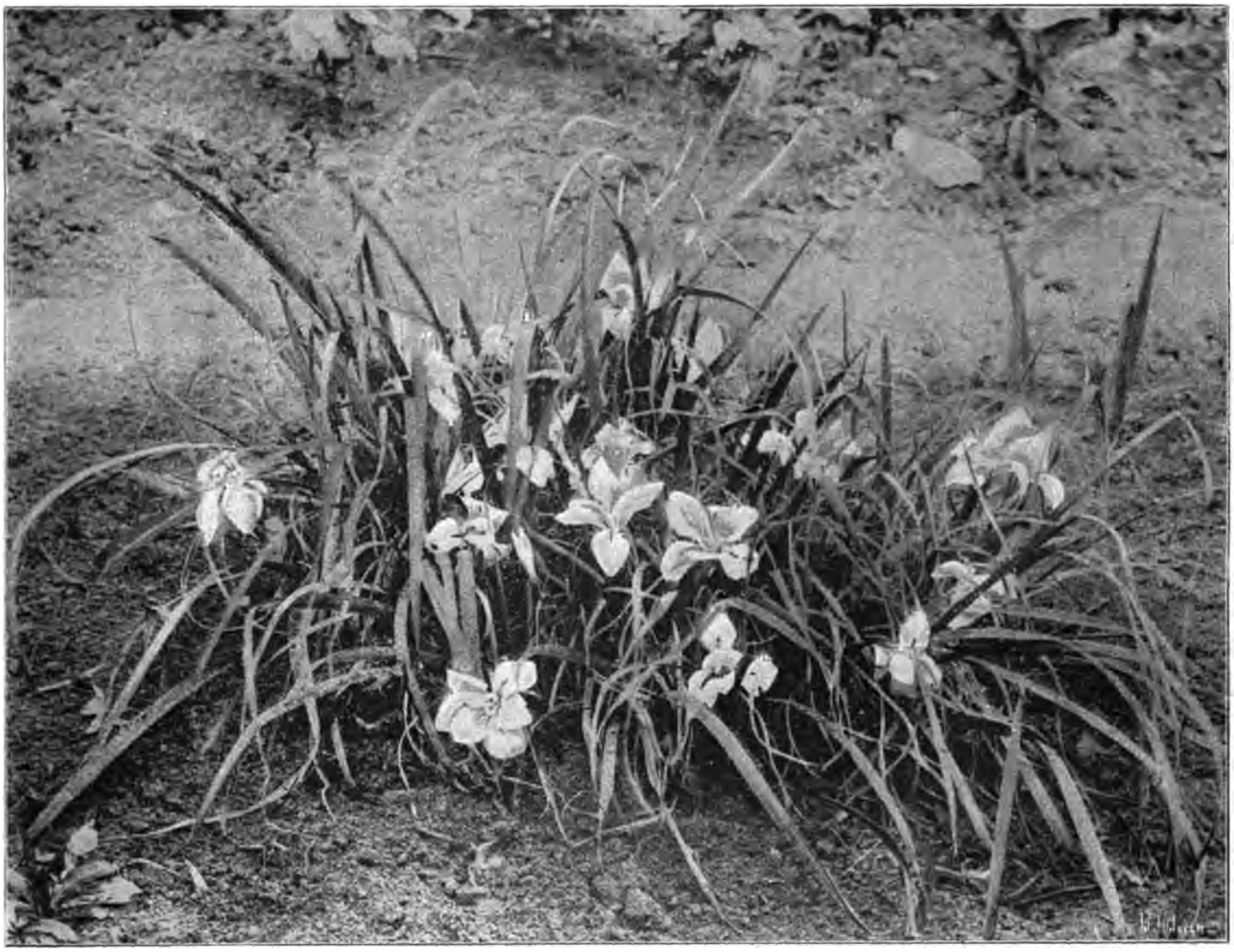


FIG. 35.—IRIS STYLOSA FLOWERING IN WINTER IN THE OPEN AIR AT TREMOUGH, CORNWALL. (SEE P. 84.)

To obtain strong flowering plants of the tree or perpetual-flowering kinds, cuttings of such varieties as Uriah Pike, Winter Cheer, Lizzie McGowan, W. Robinson, Mdlle. Carle, Miss Joliffe Improved, Mrs. Leopold de Rothschild, Reginald Godfrey, Mrs. Moore, and Mary Godfrey, should now be inserted in 4-inch pots. Use a sandy compost, and place a layer of sand upon the surface. The small side-growths make the best cuttings, and as many as a dozen may be put into one pot, if space be limited. Plunge the pots in a gentle bottom-heat in a house having a temperature of 55°. A handlight or propagating-frame hastens the formation of roots, if it be not kept too close. If they be hastened unduly by too much heat and atmospheric moisture, the cuttings may damp off. Directly they are rooted, gradually accustom them to the atmosphere of the house by removing the glass, and ultimately place the plants on a shelf as near to the glass as possible. When they are well rooted, pot them off singly into small pots, and return them to the same temperature until new growth has been made, when they should be gradually removed to cooler quarters.

DAHLIAS.

It is yet too early to commence propagating these, excepting particular varieties that may be scarce. In that case, place the tubers in a gentle heat in pots, pans, or even on the border of a fruit-house, covering the roots with sandy soil, or cocoa-nut fibre refuse. The succulent shoots, as they arise from the base of the old stem, may be taken off with a heel, and inserted singly in several pots. Give these a temperature of 65°, with gentle bottom-heat, and do not keep them too moist. *E. M.*

LATE-FLOWERING CHRYSANTHEMUMS.

The value of late-flowering Chrysanthemums in January is well appraised by the gardener who may have much decorative work to do in that month and early in the present one. Given a sufficient number of these plants, the hard forcing of Azaleas, Lilacs, and the like is not so necessary. Late white-flowering Chrysanthemums were dealt with on p. 20 of the present volume, and I will now merely mention two others not then mentioned, viz., Princess Victoria, a good and pure white when fully expanded, with stout, erect stems. The plant should not be stopped late in the season, the buds being longer in development than some other varieties, and if stopped as late in July as are some others, they do not form at all. Lady Lawrence is the second, and is an old variety, pure white, with large, broad petals, and a stout stem, and this, like the preceding, should not be stopped later than the end of June or the beginning of the following month.

Of yellow varieties, one of the best is King of Plumes, of a rich, deep golden-yellow, belonging to the class of laciniated decorative varieties, of light and graceful appearance, excellent either for cutting or as a plant. From its habit of carrying about three blooms on each growth, it is admirably adapted for furnishing vases, especially where long light sprays are the more suitable, and these may easily be had in good condition up to the end of the month of January. W. H. Lincoln is another well-known yellow kind, largely grown for late cutting ; the petals are rather stiff and erect, and the centres are subject to damp, and also not to open nicely.

The past two seasons I have grown another variety, H. W. Riemann, almost identical in colour, and equally late. The flower is altogether of a more refined character, with broader reflexing petals, and if it does equally well another year, I shall discard the preceding variety.

Waban, which may also be grown as a late variety, comes at this season of a pale lilac colour, inclining to white, with stout footstalks and long, loose petals, slightly incurving at the tips—a good addition to those already enumerated for cutting. Its duration in a cut state is also much in its favour.

There yet seems to be lacking a good late crimson variety, although Cullingfordi may be had up to Christmas. One of the most promising of recent introductions in this class is Julia Scaramanga, in colour reddish-bronze, and when the plant is grown as a bush, and stopped for the last time about mid-July, it furnishes excellent flowers for cutting in December and January, and for this season it is a very desirable variety. Generally speaking, I prefer for this purpose the plants to be grown in pots throughout the season, rather than planted out, some varieties, of which W. H. Lincoln is a notable example, refusing to swell their buds, if planted in a border or in pots under glass, after being lifted. *C. H. D.*

THE HERBACEOUS BORDER.

PAPAVER UMBROSUM.

THIS fine annual (far finer when self-sown in autumn and properly thinned, than if sown in spring) is not allowed by *Index Kewensis* to be a distinct species, but is referred to a garden variety of P. Rhæas. It is, however, described by E. Boissier (*Flora Orientalis*, vol. i., p. 113), under the name of P. commutatum, Fischer, as a distinct wild species, a native of Iberia and Armenia. I have for many years grown it in the same bed as the many-coloured varieties of P. Rhæas, which were first given to me as P. Hookeri, but differ in no way from "Shirley Poppies." P. Rhæas and P. umbrosum do not seem to mix, but each preserves its own characters, growing and shedding seed for the next year together indiscriminately, and I never saw an intermediate form. *C. Wolley Dod, Edge Hall, Malpas.*

THE WEEK'S WORK.

THE KITCHEN GARDEN

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Parsley which has been wintered in cold frames should be cleared of all decaying and old useless leaves, and the spaces between the rows slightly stirred with a pointed stick or a hand-fork. Afford air abundantly whenever the weather is mild, removing the lights when it does not rain hard, and keeping the glass clean. If scarcity of leaves is feared, sow seed in wide pans or boxes, and place in gentle heat, and when the plants are large enough, plant them in well-prepared boxes, at about 3 inches apart, and keep them growing in heat for a week or two, then harden off and plant on a warm border. Parsley plants forwarded in this manner give a good supply of leaves several weeks in advance of plants raised from seed sown in the open ground. To obtain the finest results, Parsley should be grown on a deep well-enriched and somewhat moist soil, the rows being sown 2 feet apart. When gathering the leaves, especially in the winter, only take a few from a plant, and these the nearly full-grown ones.

Basil.—In most establishments the cook requires a pretty constant supply of Basil, either dry or green. If it is the fresh herb that is mostly wanted, sow seeds occasionally in pans, using a sandy soil. After the plants are up, keep the soil moderately dry, to prevent damping-off. The seed-pans should be placed in gentle warmth, and kept therein on a shelf near the glass.

Tarragon.—Let the supply of this herb be kept up by placing boxes filled with the roots in moderate heat, removing the boxes to a less warm pit when strong shoots are started. A good-sized bed of Tarragon should be planted annually.

Spear-Mint.—A quantity of the roots should also be boxed at intervals, and treated similarly to Tarragon.

Horseradish.—Let the Horseradish-patch be trenched, in order to get out every bit of root; then select the most shapely sticks for use, and bed them-in thickly on a border, throwing litter over them in hard weather. The best of the other pieces of 1 foot long, and furnished with a crown, should be planted at 1 foot apart on a new, heavily-manured, deeply-trenched piece of land. Some gardeners put the Horseradish-bed in some out-of-the-way unsuitable spot, but in order to obtain good sticks fresh plantings ought to be made in a good position, at least once in two years. Sometimes the gardener has to make use of small pieces without a crown, and these may be put down from 12 to 15 inches deep in the soil.

Cauliflowers.—Let the young plants raised in heat be well attended to, keeping them near the glass in order to prevent lankiness, and affording air when possible. Later sowings, when they have made a pair of true leaves, should be transferred to pots, putting two plants in each, close to the sides. Let them be afforded a moderately light, rich soil, and be sure that they receive no check from cold. The first size of pot used should be a 3-inch.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Cœlogyne sparsa and Others.—The first-named is a dwarf, compact-growing kind, now about to flower; the flower comes from the centre of each young growth. It is grown here in pans, suspended on the shady side of the Cattleya-house, and in a mixture consisting of one-third fibry loam, one of Orchid-peat, and one of sphagnum-moss, mixed with a small quantity of finely-broken crocks. If any of these plants require more root-space or fresh materials at the surface, both can be afforded in a week or two after the flowers have faded. The plants must not be over-watered after being disturbed at the root. C. barbata, which should be accommodated in an intermediate-house, is now at rest, and will stand in need of very little water whilst in the dormant condition; neither will Cœlogynes ocellata, corrugata, corymbosa, and Schilleriana. The last-named is a warm-growing and deciduous species.

The Potting of Masdevallias.—Many Masdevallias need immediate attention, such are M. amabilis, M. Chelsoni, M. Harryana, M. iguea, M. Lindeni, M. Veitchi, &c., of the strong-growing species; and M. calura, M. infracta, M. muscosa, M. Reichenbachiana, M. simula, &c., of the dwarf-growing species. With few exceptions, Masdevallias thrive in a moist shady house, the temperature of which is about 50° in winter, and 58° in summer. Although a certain amount of fresh air is essential, it need not be admitted in such volume as in the Odontoglossum-house. Masdevallias should not be disturbed in cases where the rooting material and drainage are in sweet and good condition, and the pots or pans are sufficiently large. Merely pick out some of the old material, and replace it with new. But in all other instances the plants must be turned out and re-potted. In the operation of re-potting, remove as much of the decayed material and dead roots as possible, and place the plant in a pot of convenient size that has been filled with drainage material to within about 2 inches of the rim. Put some moss over the drainage before placing the plant, so as to keep it open, and then fill-in with good fibry peat and freshly picked sphagnum-moss, the latter in the greater quantity. Sprinkle in some finely-broken crocks as the operation proceeds. It will be necessary, for various reasons, to divide large specimens, and in making these up anew, the operation should be commenced at one side of the receptacle, and finished at the opposite, carefully spreading the roots, and filling in the peat and moss evenly and firmly. Such dwarf species as M. muscosa, M. Wagneriana, M. tridactylites, &c., are best grown in suspended pans. Newly-potted plants should be carefully and sparingly watered through a fine-rose for some considerable time afterwards, but those that have only been re-surfaced may be given a larger and more frequent supply.

Epidendrum (Nanodes) Medusiæ should be grown in suspended baskets in the Masdevallia-house. It is now beginning to root freely, and should be afforded some fresh moss. Nothing more than this and a few crocks is required as a rooting medium. The plant appreciates a frequent and copious supply of water, and may be immersed almost daily.

Pleione humilis, and others.—P. humilis will, in many cases, need to be repotted. This species may be grown equally well in pots or pans, but in either case the drainage should occupy rather more than two-thirds of the space. Over this place some sphagnum-moss, and use a compost of one-third fibrous loam, one of peat, and one of chopped sphagnum-moss, sprinkling in, as the potting proceeds, some finely-broken potsherds or coarse silver-sand. Instead of inserting each bulb separately, it is better to pot them in clumps; but should there be any single ones, twine the old roots round a little moss so as to form a ball, which will serve to hold it in the new soil. Afford only sufficient water for the present to prevent the surface getting too dry, but when the roots have made good progress, liberal supplies may be given. This species may be grown on a shelf near the glass in the Masdevallia-house the year through. P. lagenaria and P. Wallichiana may soon be removed from that house to a warmer and lighter position. P. maculata is making steady progress on a shelf in the Cattleya-house. In each case water is very sparingly applied, though on no account is the material allowed to become quite dry.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener, Dropmore, Maidenhead.

The Fruit-room.—The chief point in keeping fruit late in the season is the maintenance of an even temperature, and the nearer this is maintained at about 40°, the longer and better may the fruits in season be kept. With a view to preventing the rise and fall of the internal temperature of a fruit-room, the structure should be kept as close and dark as possible, and if ventilated by a window this should be well covered by several thicknesses of sacking or similar material, and all work inside should be carried on by candle-light. If ventilation be necessary to sweeten the room, air should be given when the external temperature corresponds very nearly to that inside the room. Owing chiefly to the hot and dry summer of last year, fruits in general have not kept so well as usual, and with Pears especially the ripening of reputedly late varieties have been very erratic, and in our case the fruits are mostly over. Josephine de Malines, a very late variety, was ripe early in December, and others have been almost equally precocious, a fruit or two from a young tree of Duchess de Bordeaux being the latest to ripen. Apples should be looked over about once in ten days or a fortnight, and any decaying or slightly-spotted specimens removed. Sound fruits should be carefully handled, otherwise if only but very slightly bruised, decay soon sets in. I find this season that specimens of Cox's Orange Pippin from bushes growing fully exposed on all sides lost flavour, and were soft and past their best towards the end of November; while a few others from trees slightly shaded by some large Elms, kept firm and good a month later. Late kitchen varieties, as Lane's Prince Albert, Bramley's Seedling, and Hambledon Deux Ans, are also keeping badly.

Top-dressing the Strawberry-beds.—Strawberry plantations that are allowed to fruit for two or more years should be assisted by the application of a good mulch of short half-rotten manure at this season. Assuming that all runners were cut off early in the autumn, but little cleaning of the ground will be required, and only the dead and decaying foliage and weeds need to be removed, and of the latter the smaller may be left to be pointed in with a fork an inch or two deep; a firm soil suiting the Strawberry, deep digging is a mistaken practice. A little soot and fresh lime in equal quantities, mixed together, should be scattered about the crowns of the plants for the destruction of slugs, before the top-dressing of rotten manure is applied. Where Strawberry-planting is contemplated in spring, the site should, if not already prepared, be deeply dug or trenched after the ground has received a good dressing of manure, rotten cow-manure being that kind used if the land be light. Spring planting should only be done when the land has been occupied with other crops.

the best time for planting being early autumn. Where plants for a full supply are to be planted, three situations should be chosen, so that the fruiting season may be prolonged to as late a period as possible. A border sloping to the south, and backed by a high wall, for the earliest; the more open part of the garden for the main crop, and a border sloping to the north, and shaded by a wall, for the latest supply. Good early varieties are Royal Sovereign and Vicomtesse H. de Thury, the the main crop consisting of the former; Sir Joseph Paxton, President, Veitch's Perfection, Oxonian, and Elton Pine for a late supply.

Cherries.—The pruning and nailing of Morello Cherry-trees will now claim attention in mild weather, for these trees growing usually on a north wall the operation is not a desirable one in cold weather. Any foreright shoots that were not cut or pinched-back at the summer pruning should be shortened to three or four buds, they will then form fruit-spurs for next year's fruiting. Last year's leading growths should be allowed to remain at full length, the aim being to remove old wood wherever possible, and lay-in the young to take its place.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Walks.—Nothing adds more to the comfort and pleasure of a garden than good walks, and in order to have them in perfect condition they should be properly made. Main walks should not be less than 8 feet in width, so as to allow sufficient space for three persons to walk abreast; and these walks should lead through the more attractive parts of the garden, and to points where the finest views can be obtained of the surrounding landscape. In making walks, the soil should be dug out 18 inches deep. Drains should be laid on each side and led into main drains, the latter being laid in the more undulating parts of the ground, and where there is sufficient fall to carry off the water rapidly. After completing the drainage, place a 1-foot layer of hard, rough stone on the bottom of the excavation, then one 4 inches thick of smaller stones, breaking these with hammers to make the whole firm; next add 2 inches of finely-broken stone, if the latter be not obtainable, clay burnt into ballast is a good substitute. Roll well to get it to an even surface; finish off by sprinkling evenly 2 inches of fine pit-gravel. A walk of this kind should be 2 inches higher in the centre than at the sides; on falling ground let gratings and catch-pits be placed at distances sufficiently near together to carry off an ordinary rainfall without causing channels to be washed out on the surface. The bottom of a catch-pit should be 9 to 12 inches below the mouth of the drain that carries the water away. The edges of walks should be kept low, for if made deep, they soon get uneven, and they are always unsightly. Walks that have become dirty should have the surface-gravel removed, and if it have been turned once before, fresh gravel should be used in its stead. Always make the surface of a walk made of pit-gravel firm by rolling after rain.

Cydonia japonica, or Pyrus japonica (the Japan Quince), and its varieties, are very suitable to plant against a wall having a southern aspect. If it be slightly sheltered to protect the early flowers, which open in the middle of January, and continue to flower till the end of March, so much the better. When grown as bushes they open their flowers much later, and are at their best in the middle of May. They succeed best in a retentive soil, and those trained to a wall should be spurred back at the end of the year. Bushes need only be thinned and made free from suckers. Of the varieties the best are C. japonica, with bright orange-scarlet flowers; nivalis, white; Cardinale, rich cardinale colour; rosea, rose and white; Simoni, rich dark crimson; and Maulei, the latter a low-growing bush, having small red flowers, and handsome yellow fruits.

Laburnum.—No garden is complete without this noble flowering-tree. It is easy to cultivate, and soon becomes established. The tree becomes established more quickly if planted early in spring, and just before growth commences. I have discarded the variety Adami on account of its being a loose-growing tree, with flowers of a dull purple colour. L. alpinum opens its flowers early, and are often damaged by the frost; L. a. pendulum has pendent branches, and is very graceful both in summer and winter; L. vulgare has pale yellow racemes; L. v. Parkesii flowers a fortnight later, and is deeper in colour; L. v. Watereri is by far the best variety for depth of colour, length of racemes, and lateness of flowering; L. v. foliis aureum has beautiful golden leaves, it should be planted facing north, as the leaves burn when exposed to the sun.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Acalypha hispida (Sanderiana).—This singular and striking plant is very easily propagated by means of cuttings, and if the tops of plants which have become "leggy" are taken off and inserted in small pots, filled with sandy soil, and placed in the propagating-frame, or plunged in a hot-bed, they will strike quickly, and when sufficiently well-rooted may be potted into 48's. Few plants respond more freely to generous treatment than this one; and, although it does not appear to be at all fastidious in the matter of soil, a compost consisting of three parts loam, one part leaf-soil, and one part rotten manure, with sufficient sand to keep the soil open and porous, is a suitable one. After potting, place the plants in a light position in the stove, and afford them several shifts as soon as the roots have taken full possession of the soil of the previous potting; and in the case of strong plants, 7-inch or 8-inch pots may be used for the final shift. Treated in this manner, the leaves will grow to a large size, and be retained down to the base of the plant for a considerable length of time. The long, pendulous flower-spikes, which are produced from the axils of the leaves, should not be allowed to rest upon the surface of the soil, nor upon the stage, or damping of the flowers will take place, but the plants should be elevated on inverted pots, so that the spikes may hang clear. Care should also be exercised, when syringing, not to damp the spikes overmuch, otherwise damping will follow. The old plants from which the cuttings have been taken should be placed in a moist, warm house, where they will soon produce side-shoots, which may, in their turn, be used as cuttings. The plants raised from these side-shoots will not at first be nearly as strong as those produced by the tops; and as it is only from strong plants that the best results can be obtained, every means should be adopted in order to grow them strongly, such as plunging them in mild bottom-heat, removing the flower-stems as fast as they appear, and repotting promptly. When they have grown into strong plants, take off the tops and strike them; these will form the foundation for good plants.

Gloxinias.—Seed of good strains may now be sown in pans, or 4-inch pots filled with finely-sifted soil, consisting of equal proportions of loam and peat, with a liberal allowance of sand. Press the soil firmly into the pots, making the surface level, and upon this sowing the seed thinly, and slightly covering with sand, and affording water in the same way as was advised for Begonia seed in G. C. for January 28. Lay a piece of glass or paper upon the pots, and place them in the stove, or in a hot-bed, and as soon as the seedlings are large enough to handle, prick them off into pans, or into5-inch pots, filled with a mixture of three parts loam, one part peat, and one part leaf-soil, with plenty of sand, and afford them a position near the glass in the same temperature as before. In about three weeks they will be ready to be potted singly into small pots, and when the roots have reached the sides of these, the plants may be transferred to 4-inch or 5-inch pots, in which they may be allowed to flower.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

The Second Early Peach-house.—Where provision is made for a successional supply of Peaches from trees planted in various houses, the time is opportune for closing a house, with a view to its following the first one started. In this case, the forcing may be more moderate, and particularly if the trees have been forced of late years. Assuming that the preliminary work of cleaning the walls and glass, top-dressing the borders, dressing the trees with an insecticide, has been properly attended to, the house may be closed, and the usual course of syringing carried out, once or twice each day, according to the state of the weather, affording air on bright days, and closing early, so as to husband solar warmth. Only sufficient fire-heat to raise a luke-warmness in the pipes should be employed at starting, more than this having a weakening effect on growth. In the case of free-setting varieties, it is advisable to remove all the buds on the under sides and back of the branches, and this done at this period minimises the work of disbudding later on. Shy-setting sorts had better be left until after they have flowered, and it can be seen what is the amount of the prospective crop. Afford water to the border if this has not been done, using it tepid. Young and vigorous trees need only clear water; but old and long-established trees, if not gross, will be benefited by applications of liquid manure in a tepid state, and diluted to a safe strength.

The Propagation of Vines.—The present month is the most suitable for raising Vines from eyes, the plants thus raised being suitable for planting in the borders or in pots. The shoots intended to furnish the cuttings or eyes, that is, cuttings with but one bud each, will have been heeled-in outdoors, with a view to the retarding of growth as long as possible. An eye should be selected only from the best ripened portions of the shoots, the lengths taken being about 2 inches, a cut being made transversly and squarely immediately above the eye, and a slanting one at about 1½ inch in length, in the opposite direction. Place the eyes, when made, firmly in the soil, and just below the surface of the soil. It is an advantage to allow a callus to form under cool treatment, as root action is then more rapid when the pots are plunged in a gentle bark or hot-bed, or over hotwater-pipes. This method is very desirable when good-sized canes are required by the autumn. When needed for planting purposes only, bottom-heat is not strictly necessary in any stage of growth. Pots of about 4 inches in diameter are usually adopted for Vine-eyes, which should be perfectly clean and well-drained. A compost, consisting of two parts good turfy loam to one each of leaf-mould and gritty material, or coarse silver-sand or lime-rubble will be found suitable. With this the pots should be filled, and in the centre of each put a pinch of sand as a base upon which the eye will rest on.

Cut-back Pot-Vines for fruiting next year should be re-potted, and afforded a sunny position in a warm-house. They should not be subjected to hard forcing. Should bleeding occur on any Vine from late pruning, touch the wound from which the sap exudes with a red-hot iron till bleeding ceases. In potting, use the best obtainable soil, and in a fairly lumpy state, mixing with it burnt refuse and charcoal, lime-rubble and leaf-mould, in small quantities. Animal manures are better omitted, bone-meal, or some special Vine-manure being employed instead.

Vine-grafting.—This is adopted in cases where approved varieties cannot be introduced by planting. The better to enable the gardener to graft his Vines, some conveniently-placed shoots of last year should be retained at the time of pruning. The method known as "bottle-grafting" is perhaps the most expeditious and certain. In any case, a tongue is formed as in ordinary side-grafting in scion and stock, each tongue and cut surface fitting exactly one to the other. This prevents the disappointment that sometimes arises through root-growth forming between the juncture of stock and graft, and forcing them apart. Grafting should be done when the Vines are on the point of breaking, the scions being kept in a dormant state till then by being heeled-in in the open ground. Grafting of unripe shoots by approach, or marching, is done in the early summer months.

Orchard-house Trees that are still outside should, unless the fruit is required late, be brought indoors forthwith, the drainage examined, and repotting done where found necessary, and top-dressing applied in other cases. If the orchard-house is a cold one, the starting of the trees should be deferred, so that blossoming may occur at a safer period. Trees standing in unheated houses should still remain, protected by tree-leaves, &c., and in mild weather abundant ventilation should be afforded. The forcing of Pears, Cherries, Plums, and Apples, must be of a very mild description, and during the flowering periods air should be afforded abundantly, so as to favour the dispersion of the pollen. A miscellaneous collection of trees demands much care till the flowering period is passed.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	Feb. 11	Royal Botanic Society, General Meeting.
MONDAY,	Feb. 13	United Horticultural Benevolent and Provident Society's Committee Meeting.
TUESDAY,	Feb. 14	Royal Horticultural Society's Committees. National Rose Society's Committee Meeting. Royal Horticultural Society of Ireland, Meeting.
THURSDAY,	Feb. 16	—Linnean Society, Meeting.
FRIDAY,	Feb. 17	Royal Gardeners' Orphan Fund: Annual Meeting and Election of Pensioners, at Anderton's Hotel, Fleet Street, E.C., at 3 P.M.

SALES.

MONDAY,	Feb. 13	Roses, Gloxinias, Carnations, Anemones, &c., at Protheroe & Morris' Rooms.
TUESDAY,	Feb. 14	Hardy Perennials, Iris, Lily of the Valley, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	Feb. 15	Japanese Lilies. Continental Plants, Tuberoses, Stove and Greenhouse Plants, Gladioli, &c., at Protheroe & Morris' Rooms
FRIDAY,	Feb. 17	Great Sale of 10,000 Odontoglossum crispum and 500 Cattleya aurea, by order of Mr. Thomas Rochford, at Protheroe & Morris' Rooms.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—39°.

Actual Temperatures:—
London.—*February* 8 (6 P.M.): Max., 55°; Min., 49°.
Provinces.—*February* 8 (6 P.M.): Max., 53°, Bath; Min., 43°, Peterhead

Cultivation of Monstrosities. The *Comptes Rendus* for Jan. 9, contains a paper by Prof. Hugo de Vries, on "The Cultivation of Monstrosities," in which the writer says: It is known that the characteristics of some vegetable monstrosities, such as Cockscombs, are transmitted by heredity, and reproduced by seed, as is likewise the case with Cauliflowers and sundry other plants. But other monstrosities are usually considered as caused by accidents, and as not being hereditary. Their rareness in Nature renders systematic study difficult; usually, their structure is known, but rarely their origin and growth. They are almost wholly inaccessible for physiological experiments.

For some dozen years M. de Vries has been cultivating some of these anomalies, intending to subject them to all the necessary examinations. With the exception of virescence, caused by parasites, they have proved hereditary, and have produced by isolation and selection races more or less perpetual, and sufficiently rich in malformed individuals to answer the required purpose.

In many of these cases, he now possesses the fifth, sixth, or seventh generation even of absolutely biennial forms. They are far from being all entirely constant. They show no more atavism than do the ordinary varieties, while others are only exactly reproduced to the extent of one or two-thirds.

The plants of these latter kinds, which revert to the normal type, frequently preserve certain monstrous characteristics, but in very varying degrees. Often they repeat the abnormality at the top, in the lateral branches. In perennial plants the monstrosity may reappear after two or three years. Occasionally, some plants seem completely normal, but have not lost the faculty of reproducing the monstrosity by means of their seeds

The less in degree the fixity the more inconstant — in other words, the more the cultivation of monstrosities is dependent on external conditions. Abnormal races, even of wild species, require more care than the most delicate decorative plants. It is the germination and development of the young plants which need so much care. In sowing in a greenhouse, and in pricking out the young plants singly in healthy and well-manured ground, the number of hereditary individuals can be doubled. The fasciated variety of Dandelion (Taraxacum officinale), which usually yields about thirty per cent. of fasciated specimens, will, under this treatment, produce eighty-six per cent. in the first flowering season. Crepis biennis fasciata in cultivation bears from twenty to thirty per cent. of fasciated stems; but it has yielded a proportion of from sixty-four to eighty-five per cent. under careful treatment, and a strong dressing, which consisted mainly of eighty-five per cent. crushed horn.

From a physiological point of view abnormalities may be divided into those which are constant, precocious, or tardy. Constant monstrosities show no more atavism than do ordinary varieties, and require the same care. Chrysanthemum segetum fistulosum, which has flowers with long and tubular rays, produced in 1898 ninety-seven per cent. of inherited forms among two hundred specimens. Linaria vulgaris "peloria," a plant but scantily fertile in 1898, had in 1898 only four per cent. of examples reverting to the normal type in a sowing of eighty plants; in the other specimens all the flowers were perfectly peloriated. This form is easily propagated from the radical buds.

Precocious monstrosities are those which appear upon very young plants at the time when they are ready to be pricked out. At this period of their life a selection should be made, only those being pricked out in which the abnormality is well marked. Trifolium pratense quinquefolium furnishes an example; the first leaf, simple in the normal species, bears three leaflets in most plants of this kind. In pricking out, all those plants which have fewer should be eliminated, to ensure a crop rich in five-fold leaves. If this precaution be neglected, a very mixed sowing is the result. The proportion of plants with from four to seven leaves, depends in every case on exposure, situation open to each individual, manuring, and so on.

Tardy or late monstrosities only appear some weeks or months after sowing. The fasciations of Crepis are manifest after four months, those of Taraxacum after five months, and the spiral disposition of the leaves of the twisted variety of Dipsacus silvestris are latent until the age of four months.

The development of abnormalities is mainly dependent on the individual strength of the plants, especially on their vigour during the first weeks of life. Selection of the best seed-producers is of very secondary importance, supposing that they are those of the right kind, and that the seeds are not interfered with by crossing with the normal species or with other varieties.

A sunny situation is necessary, and a healthy and well-manured soil (failing a good manure, a dressing of 100 grammes of horn-shavings per square mètre). The best sowing is that effected under glass in April, and the young plants should be pricked out singly in small pans (four inches) before being set in their places.

As regards the special care to be given to each species, the normal duration of its life must be considered. Annuals are richer in abnormalities in proportion as the seedlings are precocious, and as the growth of the young plants has been accelerated by the temperature of a warm-house and full exposure to light. As examples, may be mentioned Amaranthus speciosus fasciatus and Tetragonia expansa fasciata.

Biennials (Crepis biennis fasciata and Dipsacus silvestris tortus) are most interesting. The fasciations and tortuous growth of them are the more numerous and developed according as the life of the rosettes of radical leaves has been longer and more vigorous before the production of the stem. Too late sowing, a poor or sandy soil, a cramped or shady position, often renders all, or nearly all, the individuals of a large batch raised from the best seeds normal. An average yield of about twenty to thirty per cent. is easily reduced to nought; but it may, on the contrary, be increased by the precautions mentioned to forty per cent. in Dipsacus, and even to from sixty to eighty per cent. in Crepis. But over-manured specimens succumb in winter, especially those of Crepis. Prof. de Vries some years ago favoured us with some seed from this variety, but none of the seedlings, nor of their descendants, has ever shown the slightest sign of torsion.

Species optionally annual or biennial are most variable; for instance, Aster Tripolium fasciatus, and Œnothera Lamarckiana when fasciated. They yield good fasciations on the biennial stems only; therefore they should not be sown too soon, and all those plants should be eliminated which at the time of being set out have already developed stems. The annual stems increase frequently, but are weakly at the summit.

To sum up, the greater proportion of abnormal plants, says M. de Vries, are highly variable, oscillating between nought and often from fifty to eighty per cent. as regards the inheritance. Supposing that the seeds of a well-established race are sown, the variability depends almost wholly on the external conditions of its life, especially when young. The more favourable the conditions, the greater the proportion of abnormalities under cultivation, and the more highly these latter are developed.

Royal Horticultural Society.—The next meeting of the Royal Horticultural Society will take place in the Drill Hall, James Street, Victoria Street, on Tuesday, February 14. The various Committees will assemble at noon as usual, and at 3 o'clock the Annual General Meeting of the Society will be held at the Society's offices, 117, Victoria Street, Westminster, S.W.

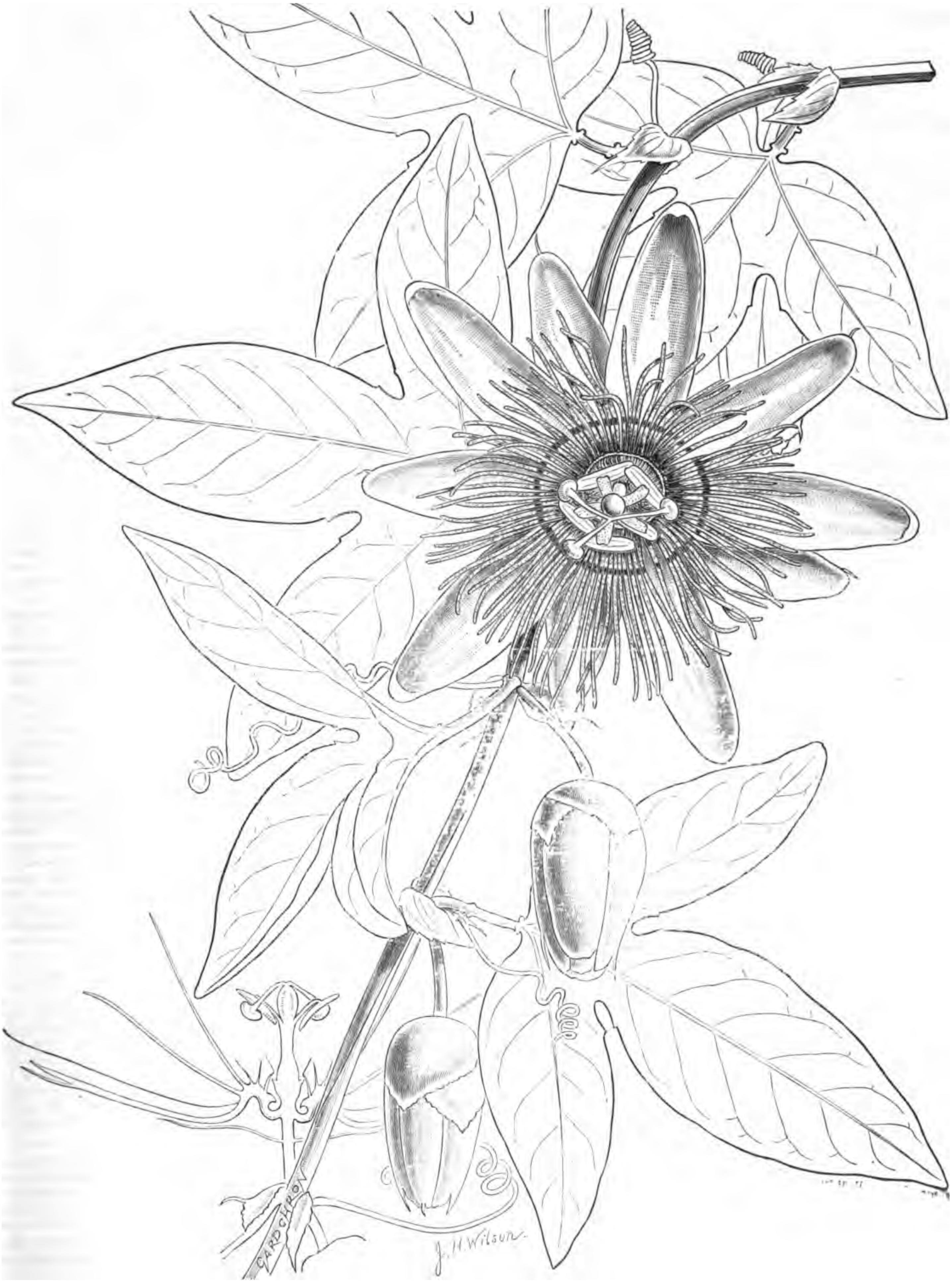


FIG. 36.—PASSIFLORA "MARGARET WILSON:" COLOUR OF PERIANTH LILAC-ROSE.

(From a drawing by the raiser, Dr. J. H. Wilson. See p. 81.)

The Linnean Society.—At the evening meeting intended to be held on Thursday, February 16, 1899, at 8 p.m., the following papers will be read:—1, "On the genus Lemnalia, Gray, with an account of the branching systems of the order Alegonacea," by Mr. Gilbert C. Bourne, F.L.S., &c. 2, "On some African Labiatæ with alternate leaves," by Mr. J. H. Burkill, F.L.S., and Mr. C. H. Wright, A.L.S., &c. 3, "Report on the Marine Mollusca, obtained during the first expedition of Prof. A. C. Haddon to the Torres Straits," by Mr. James Cosmo Melvill, M.A., F.L.S., &c., and Mr. Robert Standen.

Horticultural Exhibition at Ghent.—The programme is now arranged of the Exposition Internationale d'Horticulture de la Ligne Horticole L'Union, to be held at Mont St. Amand, Ghent, on April 30 to May 9, 1899. Many valuable prizes are offered in the various sections. A large hall is being constructed on the property of M. Alfred Van Imshoot, whose residence, greenhouses, orangery, and large garden, will all be used for purposes connected with the exhibition. *Ch. De B.*

Meeting of the Ghent Chambre Syndicale.—At a meeting of the Chambre Syndicale des Horticulteurs Belges at Ghent, on February 5, a prominent feature was a fine collection of cut-flowers of Cyclamen Papilio from M. Draps-Dom, of Laeken, near Brussels. These blooms were remarkable for variety and beautiful colouring, and were tastefully arranged with fronds of Adiantum. The spreading turbinate forms pleased me more than the wrinkled ones. M. Draps-Dom was awarded a Certificate of Merit *par acclamation*. M. Ed. Pynaert staged Adiantum Bessonianum with very wide fronds, full and healthy-looking; the plant is dwarf and ornamental. The Kentia (?) ornata differs essentially from the other species of the genus. Phœnix canariensis gracilis has narrower folioles and more elegant leaves than the type; Crinum Laurentiæ from the Congo is of dwarf habit, with many sturdy leaves, the floral racemes short and firm, the flower white and unremarkable. Anthurium Andreanum hybridum from M. C. Petrick has beautiful marbled spathes, and exceedingly ornamental leaves. Odontoglossum cariniferum has olive-brown segments, and a white lip with two violet-rose marks on the throat. O. ramosissimum bore two sturdy flower-stems with very fine flowers. These two species were from the houses of M. L. de Smet Duvivier. A hybrid Anthurium Scherzerianum raised by M. Louis de Smet has a large spathe with a broad green spot at the tip. Dracæna cannæfolia var., from the same exhibitor, is a fine plant. I would also mention a fine variegated Citrus sinensis called Gloire de Mont St. Amand. The leaves and the fruits are finely variegated; and the plant was well grown. *Ch. de B.*

Royal Gardeners' Orphan Fund. — We would remind our readers of the annual general meeting of subscribers to the above Fund, which will be held at 3 p.m on Friday next, February 17, at Anderton's Hotel, Fleet Street, E.C. Besides the usual business and election of pensioners to the Fund, a new secretary will be appointed, in succession to Mr. A. F. Barron, resigned. From nearly 300 applications for this position, the Committee, we believe, will recommend the appointment of Mr. Brian Wynne.

Chrysanthemums, etc., at Ghent.—The energy and zeal of the directors of the Royal Agricultural and Botanical Society of Ghent are things to be wondered at. We have before us the schedule of a great exhibition of Chrysanthemums which is to be held at the Casino of that city from November 12 to 14. Decorative plants, Orchids, and fruits are also to be exhibited. Foreign exhibitors are invited. M. Fierens, Coupure 135, Ghent, is the Secretary.

Stock-taking: January.—It is pleasant to find we have begun the year with a favourable commercial report; imports and exports both show increased volume, in many instances both in quantity and value; the political outlook being fairly clear at the same time, matters in the import and export line have a somewhat rosy look—if only we can steer clear of suicidal strikes. The increase in the value of imports is placed at £1,287,315—that is to say, the value for January last year was £39,929,291, against £41,216,606 for the past month. From the summary of the values we take the following brief excerpt:—

Imports.	1898.	1899.	Difference.
	£	£	£
Total value ...	39,929,291	41,216,606	+1,287,315
(A.) Articles of food and drink — duty free	13,252,926	14,211,331	+958,405
(B.) Articles of food & drink—dutiable	2,368,501	1,717,053	—651,448
Raw materials for textile manufactures	8,302,081	9,626,504	+1,324,423
Raw materials for sundry industries and manufactures	3,576,909	3,120,391	—456,518
(A.) Miscellaneous articles	1,377,214	1,170,841	—206,373
(B.) Parcel Post ...	130,881	156,372	+25,491

Wheat, as may have been inferred from our weekly averages, shows a falling off in value represented by £187,804; Barley increased by £155,153; Oats went up some £116,594. Dutiable articles fell off as recorded—Tea going down £263,836; Coffee gave way £149,573; cocoa fell off by £95,267. Hops from abroad amounted to £187,224, as compared with £242,471 in January, 1898. Seeds, Clover and Grass, show a value of £56,713, against £102,626 for the same period last year; pulp of wood, for paper-making, was valued at £132,250, against £157,058 for January, 1898; £318,949 represents the value of hewn timber introduced, as against £303,810 last year; wood and timber, hewn or split, was valued at £344,964, and last year's figures were £313,553. In chemicals, &c., £34,443 represents the decrease; oils went back £39,708. It may be noted that manufactured articles increased by £152,732; raw materials for textile manufactures gained by £1,324,423: a pleasant prospect for manufacturers. By the way, it may be noted that Australian wine prospects are looking up, and there would appear to be an early chance of a boom in Victorian viticulture—that is, if the growth of good Grapes in what are termed cool localities should prove the success anticipated. In that case great increase in the acreage devoted to Grape-growing would soon have to be reported—connoisseurs in France and Germany having favourably reported upon the qualities of the wine produced in established vineyards. From the section of the Trade Returns devoted to fruit, roots, and vegetables, we make the following extracts:—

Imports.	1898.	1899.	Difference.
Fruits, raw:—			
Apples ... ... bush.	295,551	303,058	+7,507
Grapes ... ... „	1,001	1,433	+432
Lemons ... ... „	...	...	...
Oranges ... ... „	872,849	1,244,269	+371,420
Pears ... ... „	3,060	7,332	+4,272
Plums ... ... „	3	77	+74
Unenumerated ... „	56,441	66,040	+9,599
Onions ... ... „	443,749	529,753	+86,004
Potatos ... ... cwt.	739,955	50,976	—688,979
Vegetables, raw, unenumerated ... ... value	£75,019	£109,905	+£34,886

Here are some surprising figures, the exact value of which, cultivators and salesmen alike, quite understand, as also do those who, in the depth of winter, can purchase excellent fruit at a reasonable price. As above noted, the

Exports

of British and Irish manufactures show a good front. Their total value is £20,347,234, against £19,231,404, for January, 1898, an increase of £1,115,830. The largest increase is to be found in "Ships new, not registered as British," £545,190 (this is a new item in the Trade and Navigation Returns). This is followed by £356,496, the increase in machinery and mill-work; £259,325 in raw materials; £59,205 for apparel and articles of personal use; whilst £22,963 represent the increased value of articles of food and drink exported. We may note here that there is shown a gradual improvement in the get-up of the printed Returns, making matters generally easier of comprehension by those more especially interested in it.

Botanical Magazine.—The plants figured and described in the February number are the following:—

Gentiana Burseri, Lapeyrouse, t. 7637.—This is a noble species, nearly allied to G. punctata, and having much of the appearance of G. lutea. It is a native of the Pyrenees, and of the Western Alps. The specimen figured is from the garden of the Rev. Canon Parker, of Upton Cheyney, Bristol. The roots collected by this gentleman were grown in paraffin-tubs cut in halves, and filled with leaf-mould, and the *débris* of a faggot pile. In this they thrive.

Elæagnus macrophylla, Thunberg, t. 7638.—A hardy shrub, introduced from Japan by Mr. Maries. It has broad, oblong-ovate leaves, greenish flowers, and oblong red berries, the size of a Sloe. The whole plant is densely covered with flat, star-like scales.

Dendrobium capillipes, Reichenbach, f., in *Gard. Chron.*, 1867, p. 997, and 1880, vol. i., p. 743; t. 7639.—A yellow-flowered Burmese Dendrobe, with small roundish-flat flowers, and a broad, roundish lip, with reddish lines, spreading horizontally from the base of the lip.

Ceanothus integerrimus, Hooker and Arnott, Lindley in *Gard. Chron.*, 1856, p. 36, c, ic.; t. 7640.—A native of the Sierra Nevada of California, with cordate ovate entire leaves, and many-flowered, much-branched inflorescence. It flowers annually in the arboretum at Kew.

Epilobium obcordatum, Asa Gray, t. 7641.—"As a rock-garden plant it has few rivals." It is a native of the Sierras of California, at elevations of 8000 to 11,000 feet. The flowers are of a violet-rose colour.

"The Fern Bulletin."—A quarterly journal devoted to Ferns, and published at Binghampton, New York State, by the Fern Bulletin Company, now enters on its seventh volume. It is specially devoted to hardy North American Ferns, their appearance, habits, and cultivation. The journal, we are glad to see, has been so successful that its size is to be increased. Mosses also receive attention. The editor, to whom communications should be sent, is Mr. Willard N. Clute, Botanic Garden, Bronx Park, New York City.

Grape Professor Burvenich.—The January number of the *Bulletins d'Arboriculture, &c.*, contains a coloured plate and a description of a new Grape, supposed to be an accidental seedling from the Black Hamburgh or Frankenthal. The leaves are more deeply cut than those of Black Hamburgh, and the berries are almost as large as those of Gros Colmar. It was discovered in the nurseries of MM. Gauthier Frères, at Soignies. It would, if we may judge from the illustration, make a splendid exhibition variety.

Jyree.—This is the name given to the prepared leaves of a certain Indian plant which has been for some time past recommended as a substitute for Tea. According to the *Journal of the Agricultural and Horticultural Society of India* (July to September, 1898), the real name of the plant is not yet made public. Wonderful properties are claimed for it, mostly as a curative of aches and pains as an external application; and internally as a decoction for calming the nerves, and allaying headache and neuralgia. Further, it ensures freedom from all the evils attendant on excessive tea-drinking, since it induces sleep and cures insomnia. Jyree is prepared in several ways, according to the special purpose to which it is to be applied; frequently it is used in combination with tea. If only a small part of that which is claimed for it proves to be true, and the plant can be produced in sufficient quantities, Jyree should prove a valuable acquisition both as a drug and as a beverage. In the meantime, a little scientific scepticism is prudent.

OODEYPORE.—Mr. T. H. STOREY sends us his report for the year 1897-98 on the gardens of His Highness MAHARANA FATAH SINGHJI, of Oodeypore. The gardens have been kept in good order throughout the year to the satisfaction of H.H. the MAHARANA. The report contains a list of plants suitable for hedges in that part of India, among which Inga dulcis is specially recommended. Gloriosa superba formed a splendid bed, surrounded by a protective fence of Opuntia vulgaris, the spines of which deter the deer and other animals from touching the plant. In the fruit-garden, the parrots are an ever-present nuisance, entailing the employment of watchmen night and day. The report on the menagerie and its inmates is amusing, but our limited space does not permit us to do more than mention it.

SEED CATALOGUES.—We have received the *Index seminum in horto Musei Parisiensi collectorum*, which is a list of seeds collected in the Jardin des Plantes at Paris in 1898, and available for exchange with other establishments. It is a rather formidable document of twelve or thirteen quarto pages of four columns each. It is to be wished that the modern name of the botanic garden here called "Brivatensis," had been given. We confess to ignorance as to the whereabouts of the Hortus botanicus brivatensis. Can it be Brest? From Malta also we have been furnished with the seed catalogue of the Argotti Botanical Gardens, Floriana, Malta. This is also a voluminous production, signed by Professor F. DEBONO.

NELUMBIUM.—The November number of the *Tokyo Botanical Magazine* contains amongst other articles an elaborate paper on the rate and mode of growth of the leaf and of the flower-stalks of Nelumbium. Mr. MIYAKE concludes that the different rate of growth for day and night cannot be explained by the operation of one or two factors only, but must be determined by careful observation and experiment. The conclusion of the paper will be given in another issue.

THE LANTANA PEST IN MYSORE. — To Mr. JOHN CAMERON, the Superintendent of the Mysore Government Gardens, is due the establishment of "Lantana, Limited" in Bangalore. It is incorporated under a bye-law of the Bangalore city Municipality, providing that the growth of Lantana within municipal limits shall be kept under control. Mr. CAMERON drew attention over a year ago to the extensive growth of Lantana Camara in Mysore, and observed that while the shrub served a useful purpose if kept in its proper place, it should only be admitted with much caution, and to a very limited extent where the soil is already fertile. It is a hardy plant, and its seeds are spread far and wide by birds. Like the Prickly-Pear, too, it takes a good deal to eradicate it. An attractive and protective plant, it makes a good bid for popularity; but the fiat has gone forth, and for the future its growth is to be limited in Bangalore. No doubt similar measures will probably be taken in other parts of Mysore, so that we may expect soon to see "Lantana, Limited," opening numerous branches, and throwing out "suckers and seedlings" as vigorously as the plant itself does. *Planting Opinion, cited in "Indian Gardening."*

WARNER'S KING ALIAS D. T. FISH APPLE.—We learn from the *Wiener Illustrirte Garten Zeitung* that at a meeting of the Horticultural Society of Vienna on December 18 last, the merits of this variety of Apple were discussed by several gardeners present, and Herr HUGO MÜLLER said that the tree succeeded admirably in Lower Austria, and on that account, and the fine, juicy, well-flavoured fruits its distribution should be encouraged.

ALNWICK CASTLE GARDENS.—We learn that Mr. GEO. WYTHES, the well-known able head gardener to the Duke of NORTHUMBERLAND, at Sion House, Brentford, will, in addition, take over the management of the ducal gardens at Alnwick Castle, whilst continuing to reside at Sion. The actual carrying out of the work at Alnwick will be entrusted to Mr. FOLLWELL, who has hitherto been his principal foreman at Sion. It is an onerous undertaking, and one that is, doubtless, not intended to be permanent, and we wish Mr. WYTHES every success. Mr. HARRIS, hitherto and for many years the head gardener at Alnwick, is leaving to take a business.

FIRE AT THE UNIVERSITY OF GENEVA.—The *Semaine Horticole* gives details of the terrible fire which, on the night of December 25, destroyed the buildings of the University at Geneva. When we mention that the Delessert Herbarium was burnt, we have said enough to excite the sympathies of botanists. Professor CHODAT's personal herbarium is lost, as well as the Mediterranean plants of HUBER, and various collections lent by the Museums of Brussels, Zurich, and elsewhere, for the purpose of comparison.

JUNIPERUS VIRGINIANA, "THE RED CEDAR."—There are in gardens several forms of this plant, some more beautiful than others. We should be obliged if any correspondent would inform us whether such beautiful forms as J. virginiana, Schotti, Chamberlaini, Bedfordiana, are more tender than the ordinary forms. A specimen received from Florida, through the kindness of E. B. THOMSON, Esq., approximates very closely to the form known as Schotti. Prof. SARGENT, we believe, is inclined to separate the Florida form as a distinct species.

NEW BRITISH FUNGI.—Messrs. H. T. SOPPITT and C. CROSSLAND reprint from the pages of the *Naturalist* the descriptions of a number of species found by them in West Yorkshire, together with a plate illustrative of their structure.

PROF. CARUEL.—The number for January of the *Nuovo Giornale Botanico Italiano*, contains a portrait of Prof. CARUEL, whose death on Dec. 4, 1898, we had occasion to announce. Prof. CARUEL had edited the new Italian Journal of Botany for twenty-two years, and was the first President of the Italian Botanical Society.

"ONE AND ALL GARDENING."—A copy of this useful annual for 1899 is now before us. It is edited by Mr. E. O. GREENING, and published at 3, Agar Street, Strand, W.C. The contents of the present issue include papers by the editor, by Messrs. T. W. Sanders, D. T. Fish, T. S. Cooper, R.A., H. Rider Haggard, and many other writers, including Mrs. Dr. Blackwell, Mrs. M. G. Fawcett, and Miss M. E. Braddon. Some of these articles deal with the charms and benefits to be derived from gardening, others are of a practical nature, and for the value and reliability of these the names of the authors are a sufficient guarantee. There are many illustrations, among them numerous portraits, and some pretty views of gardens.

FRUIT FROM THE CAPE.—The Union Steamship Company's vessel *Scot* has brought 361 boxes of Peaches and 59 boxes of Plums from the Cape. All arrived in excellent condition, and realised fair prices. Particular attention is drawn to the fact that some of the fruit was sold in Manchester on the day following the ship's arrival in Southampton. Sixteen boxes of Peaches and forty-four boxes of Plums were consigned to Havre for sale there.

AUSTRALIAN FRUIT.—The general manager of the Orient line of steamers—to which it would appear has now been delegated the carrying of fruit from the Australian colonies and Tasmania to this country—has informed us as to the dates of sailing of their fruit-ships during the coming season. The first ship to start is the *Cuzco*, which is to leave Sydney on February 18, and is due at Tilbury on April 1; the *Oruba* departing from the same port on March 4, and arriving on April 15; the *Ormuz*, March 18, arriving April 29; the *Omrah*, starting on April 1, and arriving May 13; the *Austral*, leaving on April 15, and arriving at Tilbury on May 29; and the last of the ships, the *Ophir*, leaving on April 29, and due here on June 12.

LINCOLN POSTAGE-STAMP CATALOGUE.—Mr. W. S. LINCOLN, of 2, Holles Street, Oxford Street, W., has just issued the twelfth edition of his stamp catalogue. The new volume is thoroughly up-to-date, is larger and fuller than its predecessors, and contains over 4000 illustrations.

DINNER-TABLE DECORATIONS AT LORD SALISBURY'S.—On Monday last the occasion of the Premier giving a dinner-party, at his London residence, to seventy-five of his adherents in the Upper House, the table was effectively decorated by Mr. NORMAN, his Lordship's head gardener, in the present fashion of employing one or very few kinds of flowers. It is a well-understood rule at dinner-parties that the plants or cut-flower devices shall not obstruct the view of the seated guests across the table, and this was strictly adhered to on the present occasion. Shallow pans or saucers, measuring 1 foot in diameter, were placed together, so as to form groups 3 feet in length, alternated with a solitary one. When filled, the width of each would be about 1 foot 8 inches. In every case sprays of Calanthe Veitchi, of a deep rose colour, formed the chief decorative material; and those being inserted in the damp sand with which the pans were filled, fell gracefully outwards. In a few instances, flower-spikes of Cœlogyne cristata, Cypripedium insigne, and Lily of the Valley were placed among and beneath the Calanthe flowers. The groundwork of the pans consisted of Adiantum Farleyense, lavishly employed, spreading over the table-cloth 6 in. beyond the pans, and effectually hiding them from sight. In the seven circular groups the leaves of Grevillea robusta were used, together with the fronds of the Adiantum; and a species of Cyperus was used at the top, together with Lily of the Valley. As a material to contrast with, and tone down the excess of pink colour, sprays of Asparagus plumosus were stuck in amongst the Calanthe blooms. The general effect was pleasing. We understood that the whole of the materials were produced at the gardens at Hatfield.

PUBLICATIONS RECEIVED.— *The Australian Fruit Garden*, by J. G. Heron. (Geo. Robertson & Co., Melbourne, Sydney, Adelaide, Brisbane, and London.) A useful handbook, forming No. 8 of an Amateur Series.—*Annual Report of the Queensland Department of Agriculture*, for the year 1897-98.—*Bulletin from the Laboratories of Natural History of the State University of Iowa*, vol. iv., No. 4, comprising papers I., on the Iowa Sedges, by R. T. Cratty; and II., Descriptions of American Uredineæ, ii., J. C. Arthur, and E. W. D. Holway.—*Bulletins* 16 *and* 18, *United States Department of Agriculture, Division of Entomology*, the Hessian Fly in the United States, by Herbert Osborne, and miscellaneous results of the work of the division.—*Boletim da Sociedade Broteriana*, xv., 1898.—*Bulletino della Società Botanica Italiana*, Dicembre, 1898.

NOTICES OF BOOKS.

CYPRIPEDIUM, SELENIPEDIUM, AND UROPEDIUM:[*] Monograph, comprising descriptions of all the Species, Varieties, and Hybrids existing at the present day. By F. Desbois.

SUCH is the title of a very voluminous work extending over 544 pages, compiled by M. F. Desbois, of Auderghem, Belgium, a gentleman well known for the interest which he has taken in the genus Cypripedium during a great number of years. It should be said at the outset that the work is essentially for gardeners, as little attempt is made to bring it into any kind of botanically classified order, the names and descriptions being generally taken as originally published, and without any attempt being made to decide as to whether they are different from previously described species or varieties of the same parentage. Thus with prolific crosses such as C. × Harrisianum, in which practically the same thing has been described under different names, no attempt is made to reduce them to synonyms or varieties, but each appears under the title given to it by its raiser or describer. That many of the hybrids of the same crosses are dissimilar there is no doubt, and in a work destined for gardeners, it may be convenient to place each under its original name, and trust to the descriptions which follow to indicate the affinities to plants bearing other names.

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[*] *Les Cypripediums, Leur Monographie*, F. Desbois, Gand. Imprimerie : E. Meyer, Van Loo, Rue de Flandre, 66.)

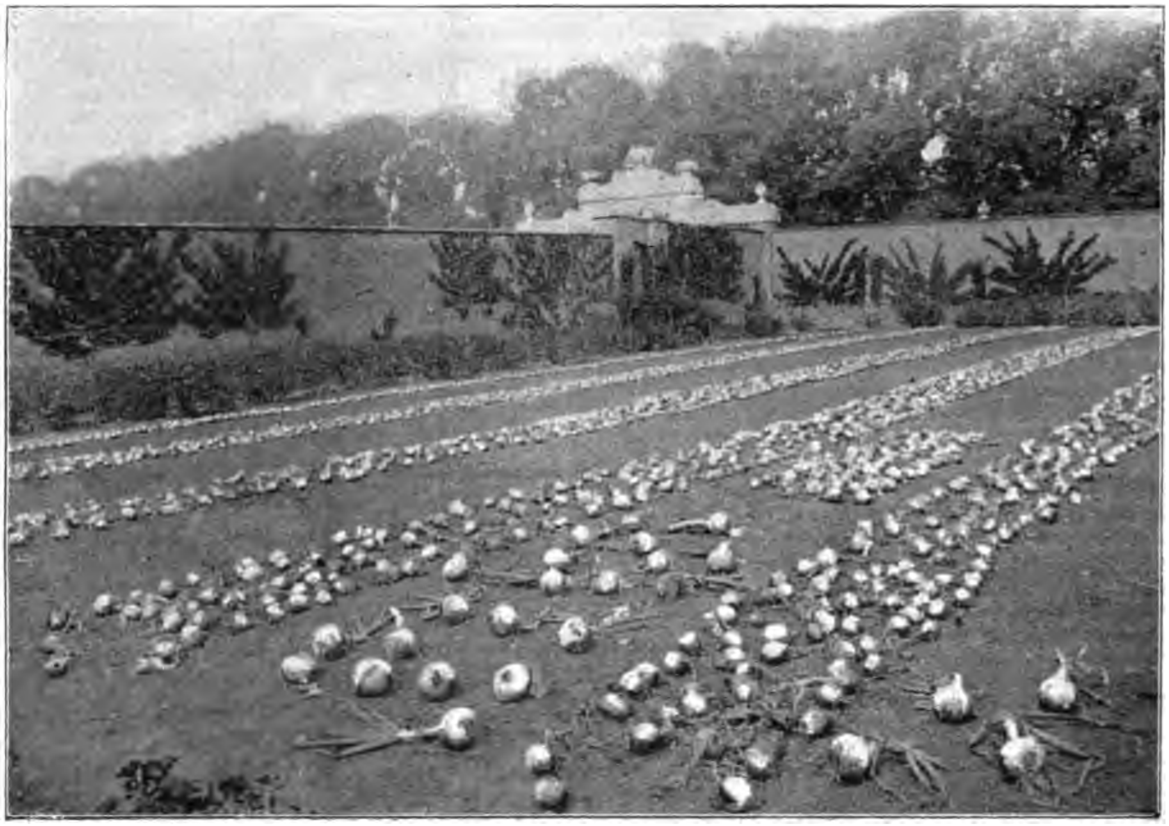

FIG. 37.—A CROP OF AUTUMN-SOWN ONIONS, EQUAL TO 12 TONS PER ACRE, GROWN IN WREST PARK GARDENS.

The old generic names Cypripedium and Selenipedium are adhered to, though why Uropedium should be introduced to carry Uropedium Lindeni, now generally admitted to be nothing but a form of Selenipedium caudatum, it is not easy to perceive, except for the purpose of carrying out the plan of the work to include all published names. In dealing with species in other parts of the work, too, there are a few contradictions. For example, on looking for C. Philippinense we failed to find it in its place, but on turning to its synonymous names, C. lævigatum and C. Roebeleni, we find them elevated to specific rank, and full descriptions given. Probably the omission of the correct specific name in its proper place is an oversight, for the author says under C. lævigatum, "Cette belle espèce est aussi connue sous le nom de C. Philippinense, qui est le premier en date et qui l'on doit préfèrer."

The work commences with an explanation of the three groups into which the author divides his subject, viz.:—1, Groupe de la region tempérée (Cypripedium Calceolus, &c.); 2, Groupe des Selenipediums; 3, Groupe orientale (C. barbatum, C. insigne, &c.), and under each group some good general remarks on culture follows. Then comes a chapter on hybrid Cypripediums, followed by an enumeration of all published species and varieties, to each of which are appended extracts from the original descriptions, with references and such remarks as suggested themselves to the author.

The work is interesting in many points, and especially in demonstrating the fact that most of the important work of importation and hybridisation has been done from the British Isles, and in indicating the great variation to be found in some of the species and hybrids. In dealing with varieties of C. insigne, more than eighty recognised and published varieties are included. What a revelation it would be if all these could be got together, and in flower at the same time! and what a slaughter there would be if all which were not furnished with well-defined fixed characters, should have to be destroyed! The work is well printed, and contains no more errors than are almost inevitable in such a book—chiefly printers'—and readers will doubtless be as glad to see it as M. Desbois must have been to see the last sheets of his proofs, which had been a source of his continual care for many years. Unlike many other similar publications, this one is brought well up to date; and it is also well illustrated.

The work will ever remain a monument of the patience, cleverness, and zeal of M. F. Desbois, and we heartily recommend it to all interested in the Cypripedium.

AUTUMN *VERSUS* SPRING-SOWN ONIONS.

THE year 1898 owing to the drought, was a very trying season, and during the summer and early autumn many of the kitchen-garden crops suffered greatly. Onions were more or less attacked by maggot and mildew. Remedies were tried, but they proved of little or no avail after the grub and mildew had once attacked the plants. The attack was worse on spring-sown Onions than on those that were sown in autumn and were transplanted to their permanent quarters during March. This was no doubt due to the latter having become better established.

The crop of spring-sown Onions, when harvested, was anything but a satisfactory one; but the crop of autumn-sown Onions did capitally, and the maggot never managed to make its appearance amongst them. I would strongly advocate the sowing of a greater proportion of the Onion crop in the autumn, as I believe they will better resist the maggot and mildew than those sown in early spring.

If it is not convenient to sow seeds during the autumn, then I would procure some shallow boxes in January, or early in February, and sow in them such varieties as Ailsa Craig, Cranston's Excelsior, &c.; raising the seedlings indoors, and when properly hardened off, transplanting them into the open ground. This method gives very satisfactory results, and the risk of the crop being attacked by maggot and mildew is reduced thereby to a minimum. [See also Mr. Woodgate's letter on p. 76 in our last issue. ED.]

The late Mr. Mackenzie, who was gardener at Rosehaugh, near Inverness, writing to the *Gardeners' Chronicle* about forty-five years ago, remarked that transplanted Onions frequently escaped the grub in gardens where the spring-sown crop is greatly injured by it, and he gives the mode by which he obtained a superior crop of sound Onions from autumn sowings. He also states that none of the plants was attacked by the maggot; whereas, the spring-sown Onions were nearly all destroyed by it in the same kind of ground, and to which the same kind of manure had been applied. I herewith send you a photograph (which we reproduce in fig. 37, p. 92) of a square of autumn-sown Onions grown in the garden here last season. After weighing the Onions and measuring the ground, we found it to represent a crop of about 12 tons per acre. *George MacKinlay, Wrest Park Gardens Ampthill.*

HOME CORRESPONDENCE.

CAPPARIS SPINOSA.—From an answer to a correspondent in the issue of the *Gardeners' Chronicle* for February 4, it appears worth while, on the matter of culture, to refer to a specimen of this plant in the Cambridge Botanic Garden, which is decidedly handsome both in flower and out of flower. It is planted on a low rockery, between some houses standing 9 feet apart, and against a greenhouse wall, where it is covered with a frame-light in the winter, chiefly to protect it from excess of moisture; some light litter is also thrown over the crown, and this is quite sufficient to protect it from any probable degree of cold. The plant is much hardier than might be supposed, though its chief requirement is sunlight and warmth during the period of growth. It will live in a pot, but its cultivation is then doomed to failure. Our specimen cannot be less than 5 feet across when fully developed in the summer. *L.*

CLEMATIS VITALBA.—It may possibly be of interest to Mr. Divers to know that the old and correct name of this beautiful climber is Traveller's Ivy. It is so called in all, or nearly all, ancient botanical works; and I was pleased to notice that this old name has been revived in one of this year's garden catalogues. When it is considered how very similar the capital 'I' is to the 'J,' and how easily a 'v' may be written as an 'o,' the corruption of 'Ivy' into 'Joy' becomes at once apparent. *J. C. B., Stamford.* [The term Traveller's Joy seems, says Mr. J. Britten, in *English Plant-Names*, to have been invented by Gerard, who speaks of its "decking and adorning waies and hedges where people trauel, and thereupon I have named it the Trauellers Joie." Gerard, 739. Has the old English Joie been corrupted into Ivy? ED.]

TIBOUCHINA (LASIANDRA) MACRANTHA IN CORNWALL.—One of the most interesting plants growing out of doors at Menabilly is Lasiandra macrantha; at the present time (Jan. 25) it is in perfect health, with fully expanded flowers or flower-buds on every growth. The foliage is looking as fresh as if it were growing under glass. Owing to want of room in the houses, I planted out last spring, from a 16-inch pot, a shabby-looking plant about 5 feet high. It was planted in the border amongst other shrubs, in the ordinary loamy soil to take its chance. Up to the present time the weather has had no injurious effect on it. On Jan. 24 occurred the most severe frost, and this was only 6°, but the winter has been remarkable for a great number of storms. Should this plant prove hardy in Cornwall, it will be a great acquisition to our flowering shrubs, the colour of the flower is such a contrast to the other winter-flowering shrubs. A few feet distant is a large Camellia, with a great number of fully expanded red flowers; also Rhododendron calophyllum, covered with its beautiful white sweet-scented blooms. Then, glancing at the thousands of Snowdrops and Narcissus to be seen, it makes one think that spring is far advanced. *W. H. Bennett.*

ARCHONTOPHŒNIX CUNNINGHAMIANA (SEAFORTHIA ELEGANS).—Amongst all the species of Palms grown in our gardens, there is none more graceful or useful than this one. It is no unusual thing to see it carrying three or four spikes of flower or fruit. A grand specimen could have been seen a short time ago in the gardens of Malvern House, Nottingham, carrying a crop of handsome red fruits. It is suitable only for lofty houses, and the plant at Malvern House is about 30 feet high, and it carried fourteen well-developed leaves. The species can be propagated from seeds, and plants thrive either planted out or in tubs and pots, if afforded good fibrous loam, leaf-mould, and sand, with good drainage, and abundance of water when growing. *G. Burrows, The Dell Gardens, King's Norton.*

SNOW AS A PROTECTION TO ROSES.—Most cultivators of the Rose like to have a covering of snow on their favourites, to mix with the February rains. Snow, if it fall to a depth of 4 to 6 inches, affords a constant and regular degree of protection against frost, such as we have in this country, protecting the plants against sudden thawing, that cripples and kills our Roses, rather than frost. It is thus that snow is like wool in retaining heat. More or less snow in the months of January and February is good and safe for our Roses. There are no devices of man so safe and cheap as snow as a protector. Fir-tree boughs, heaps of straw and tree-leaves, bracken, short litter, and, worst of all, long grass, may all be used to cover the Rose-bushes; but if these be used in excess, or not removed in good time, they bring enfeeblement or disease. With a covering of snow on their heads [which soon melts. ED.], and a mulch, and manure over the roots, Roses winter safely enough in this country; and it is safe to say that more Roses are lost by being coddled than are killed by frost. With ordinary foresight and skill in pruning and training Roses, there is little danger that the plants will be spoiled or broken down by the weight of the snow resting on them. My memory carries me back to the time when, to ease Conifers of heavy falls of snow, we used to shake the boughs with poles, carefully wrapped round with rags, to save them from injury; a necessary kind of work, but one that is never required by Roses. *D. T. F.*

THE MILD WINTER WEATHER.—When reading the paragraph headed "The effects of the mild weather," in your issue of 28th ult., the reference to Apple Deux Ans reminded me of having recently read of the same Apple in the early minutes of this Society. I quote the paragraphs containing the name, but without comment, except that the minutes were remarkably well kept, and, I have every reason to believe, they are thoroughly to be relied upon.

Extract from Minute of March 14, 1822.

"Dr. Duncan, Senr., invited the members to view upon an Apple-tree in his garden at St. Leonard's (Edinburgh), perfect specimens of last year's fruit, belonging to the variety known by the name of Pomme de deux annés."

Extract from Minute of June 13, 1822.

"Dr. Duncan, Senr., who, at a former meeting of the Society, gave an account of an Apple-tree in his garden bearing the Pomme de deux annés, presented at this meeting two Apples taken from that tree in the morning, and growing within a few inches of each other, one of these Apples being the produce of blossom of the year 1821, and the other of blossom of the present year."

—*P. Murray Thomson, Sec., Royal Caledonian Horticultural Society.*

THE WINTER ACONITE.—My thanks are due to those of your correspondents who have so kindly supplied dates of the first flowering of the Winter Aconite. Their observations may be divided into two classes, viz. (1), Those which were made either in the North of England or in Scotland; (2), Those made in localities south of the Trent. Taking first the four observers from the north, we find that their dates range between January 9 and 16, whereas only three out of the six residing south of the Trent are able to give any dates at all, the rest stating that at the times they wrote (January 13 to 18) the Winter Aconite had not yet come into flower. Indeed, Mr. Batters reports that at Gillingham, in Norfolk, even as late as January 18, he could not, after a careful search, discover "either flower or foliage." My own observations of the first flowering of the plant in question which have been made in a backward district in Hertfordshire, now extend over eleven years. The average date for this period comes out as January 22, and the range from January 7 in 1898, to February 11, in 1891—or exactly five weeks. This year the first blossom opened on January 18, which is four days in advance of the above average. So that taking mild and cold winters together, the time of flowering this year is probably by no means unusual. But when we come to consider the exceptional character of the last four months of 1898 as regards temperature, it at first sight appears surprising that the Winter Aconite should not, in most parts of the country, have made its appearance above ground at least a fortnight earlier than it did. For in none of the eleven years I have had the Winter Aconite under observation, was the ground in the same four months anything like as warm as this year. It is only when we call to mind the drought of the previous summer and early autumn, that we begin to realise what a retarding influence it must have had upon the growth of this and many other winter-flowering plants. It should also be remembered that in the southern half of England this drought was much more severely felt than in the northern counties; while in many parts of Scotland there was practically no drought at all. *E. M., Berkhamsted.*

BEGONIA GLOIRE DE LORRAINE.—In reply to Mr. Burbidge's enquiry on p. 62, it may be stated that of the large number of this useful Begonia grown here, probably not more than one plant in two hundred bears female flowers, and those only one or two upon each, a comparatively small plant now in flower carrying three. M. Lemoine, from whom I purchased it, gives B. socotrana and B. Dregei as its parents. *H. B. May, Dyson's Lane Nurseries.*

CROSSBEAKS.—I notice in the issue for the 28th ult. your remarks on these birds. At Battle, in Sussex, these birds are numerous this season, and they were noticed as soon as the Fir-cones were fully grown. Some time elapsed before I could make out what caused the Fir-cones to fall when green, but after watching for a time, I discovered the crossbeaks were the cause. I have not observed any other damage done, so the birds are not molested, which is not the case with the hawfinches, which are plentiful hereabouts. *Wm. Camm, Battle Abbey Gardens.*

THE LATE MR. JOHN LEE.—Of the memorable twenty-one who formed the Executive Committee of the International Horticultural Exhibition and Botanical Congress in 1866, sixteen have been called away by death, that number being made complete by the departure of the veteran John Lee. Of the building committee, Messrs. C. Lee, J. Gibson, J. Standish, and H. J. Veitch, only the latter is alive. The arrangement committee, who dealt with the disposition of the several subjects, Dr. Hogg, and Messrs. Gibson, Eyles, and Moore, have all passed away. Of the twenty-one who were photographed on the terrace of the Star and Garter Hotel at Richmond, only Sir Daniel Cooper, Bart. (Treasurer), Dr. M. T. Masters, and Messrs. W. Bull, Edward Easton, W. Paul, H. J. Veitch, and R. Dean (Assistant Secretary) survive. This exhibition was a great horticultural event, and allusion to the departure of anyone who took an active part in carrying out its details is justifiable. *R. D.*

ROSE QUEEN MAB. — Your correspondent, "A. P.," on p. 52, remarks that this Rose is not a good grower. With us it has been from the first an excellent grower, making strong, sturdy little bushes. Like other Roses of its class, it blooms too freely to make long or straggling shoots; but in this consists one of its great merits as a bedding Rose. We were interested to read "A. P.'s" remarks upon the variety Grand Duc Ernest Ludwig, as up to now we have not been able to meet with any one who has flowered it sufficiently in this country to pass an opinion on its merits. Has "A. P." seen it in bloom in England or elsewhere? *Apropos* of the name, the variety, we believe, was raised in Germany, and came to us as Grossherzog Ernst Ludwig; if the name is to be translated into French (for which, however, we see no necessity), should it not be Grand Duc Ernest Louis? *Wm. Paul & Son, Waltham Cross.*

THE GLASTONBURY THORN.—In the front garden of a large villa residence at Ealing, appropriately named Glastonbury House, is a good-sized specimen of the early-flowering variety of Cratægus oxyacantha, which bears the name of the Glastonbury Thorn. The tradition which sets forth its origin is well known, and is not worthy serious consideration. But the fact remains, that there is a singularly early variety of the common Hawthorn which does blossom on or near Christmas Day, or soon after this popular festival. Some have said that it is in flower thus early only in the particular locality in which it is stated to have originated, and that when removed to a different, and especially to a colder climate, it loses its precocity to a great extent. The specimen at Ealing has been planted probably twenty or more years, but it still retains its early-flowering character; and not only does it produce blossoms, but leafage also long before its relative, the common Hawthorn. Change of climate and locality, therefore, does not appear to affect this peculiarity of early flowering. *R. D.*

LAW NOTES.

JOBBING-GARDENERS' ANNUAL LICENSE.

WE briefly noticed in our last issue an important prosecution instituted by the Inland Revenue authorities at Manchester, having reference to gardeners employed by nurserymen to do work in private gardens.

We now publish an account of what has since taken place, kindly sent by Messrs. W. Clibran & Son, of Oldfield Nurseries, Altrincham :—

"We now write to give you the later information named by our Mr. Brown, in *re* The Inland Revenue Board *v.* Treeby. Mr. Hockin, Treeby's solicitor, suggested that a deputation of the trade and jobbing-gardeners should wait on Sir John W. Maclure, M.P., lay the case before him, and ask if he could assist in getting the decision set aside. Mr. Councillor Collens, Edge Lane Nursery, Stretford, therefore arranged with Sir John for an interview; and after consultation with various members of the trade, a deputation waited on him on Saturday the 4th.

Mr. COLLENS, in introducing the deputation, referred to the copy of the Act, and pointed out that the decision against Mr. Treeby, in his opinion, was a misrendering of the Act, and that it was not intended by the Legislature to inflict a hardship, such as the present case brought about on jobbing-gardeners, nurserymen, and florists, as neither master-gardeners nor nurserymen were mentioned in the Act as such. Cooks, confectioners, and waiters, were included under the head of servants liable to be taxed, but it was well known that none of these, when employed commercially, ever took out licenses. The same remark applied to park-keepers and gardeners in the employ of corporations. Licenses were never taken out for these men, yet they were as much liable under the present decision for taxation as jobbing gardeners in the employ of nurserymen or florists.

Mr. H. Watkins (of Messrs. Wm. Clibran & Son, Altrincham), on behalf of his firm, protested against the decision recently given as being contrary to the spirit of the Act. As although gardeners, and under-gardeners, among other servants, were specifically mentioned in paragraph 3, section 19, of the Act, as being liable for taxation, the meaning, it was contended, had reference to servants employed solely in a private capacity, and not to include men employed by master or jobbing gardeners, who depended upon it for part of their trade.

In further proof it was pointed out that the only tradesmen named in the Act were those using or dealing in horses. These tradesmen were specifically named, although coachman, groom, stable-boy and helper in stable are also named; and if Parliament had intended that tradesmen commercially engaged in gardening were to obtain licenses for the men they send out to take care of villa gardens, that intention would have been made clear in the Act. It is only by Sub-section 4 of Section 19 that commercial gardeners can be brought in, and this same sub-section would have covered the tradesmen with horses without special mention of them. The fact that the Act does name those commercially connected with horses and does not mention those commercially engaged with gardening is a proof that it was intended that the one class should be licensed and that the other should not.

The Act provides that livery-stable keepers must keep books of account. Had it been intended that jobbing gardeners be licensed, it would surely have provided that they, too, should keep books of account, as the number of men they employ varies so much from season to season, and in different parts of the same season.

It was mentioned that one man frequently attended fifteen or twenty places in a month, and if he was not himself licensed by his employer, it was contrary to the spirit of the Act that twenty licenses should be taken out by customers for one man's service. Parliament never intended industry to be taxed in this way, and that it would only be by applying the words of the Act in a different meaning that the trade could be so taxed. The Act had been passed thirty years, and it was the first case of its kind, thus proving that the officials of the Inland Revenue had not for that length of time construed the Act in the way the present decision placed it.

In conclusion, it was hoped that Sir John Maclure would use his utmost influence to have set aside a decision so damaging to nurserymen generally.

Sir JOHN WILLIAM MACLURE said that, personally, he had no objection to the luxury of coachman or gardener, but he looked upon them in their private capacity as luxuries, and as such he was prepared to pay for them. He quite agreed with the remarks put before him, and thought it a very unfair and improper thing to tax a working gardener who was not in a continuous appointment. He would like the deputation to appoint two of their number to meet him in London, and he would take great care that they had an interview with the most important people on the subject, as he thought they had a grave charge to bring against the permanent officials; and he would take care that the statements so put before him should be heard, and he would accompany them and see if their request could be refused, which he did not think it could be. He would put them in communication with the very best authority, and give them his heartiest support throughout in support of their cause. He would be in the House of Commons on Tuesday or Wednesday (7th and 8th inst.), and suggested that no time should be lost, as the sooner the matter was brought to a satisfactory conclusion the better. If they did not succeed, it would not be his (Sir John's) fault.

A vote of thanks was cheerfully accorded to Sir John W. Maclure for his patient hearing, and his kind promise of support.

After Sir John W. Maclure left the room the matter was talked over by those present, and it was arranged that Mr. Councillor Collens and Mr. Treeby should wait on the Hon. Baronet at the House of Commons on Tuesday, and lay the case before the Board's officials.

Notice of appeal has been given, and if Mr. Yates' decision be appealed against, the trade generally should subscribe to the cost, unless the case be taken up by the Nursery and Seed Trade Association."

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 31.—*Present:* Dr. M. T. MASTERS (in the Chair); Mr. Veitch, Mr. Bennett-Poë, Dr. Muller, Rev. W. Wilks, Professor Farmer, Mr. Michael, Professor Balfour, Mr. A. Sutton, Rev. Professor Henslow (Hon. Secretary). Visitor, Mr. L. Sutton.

Potato-grafting.—Mr. A. Sutton read an interesting paper "On the Results of Grafting and Hybridising Potatos with Tomatos," the substance of which was given in these columns in our last issue.

Hollyhock Disease.—Leaves attacked by Puccinia malvacearum were received from Mr. E. Molyneux, a fungus which has proved fatal to these plants for many years.

Eucalyptus sp.—Dr. Masters showed a flowering specimen of E. cordatus, growing in the open in Co. Down; and of E. Globulus, grown for forty years in Leicestershire. Professor Balfour observed that on the coast of Ross-shire several plants characteristic of the Riviera thrive well, in consequence of the amelioration of the climate by the proximity of the Gulf Stream.

Cypripedium.—Dr. Masters also exhibited a blossom of a Cypripedium, in which the two normally coherent sepals were free.

Fasciated Cyclamen.—Dr. Masters exhibited specimens of this not unusual phenomenon of several flowers with leaves on the same stem.

PEOPLE'S PALACE HORTICULTURAL.

FEBRUARY 1.—The annual meeting of this Society was held on the above date, the chair being occupied by C. E. SHEA, Esq.

For a Society which has been in operation only a few years, it has made astonishing headway, and seeing that its members must of necessity be drawn from densely-populated districts, where the growth of plants can be made only under unfavourable conditions, the obvious conclusion is that it supplies a want which is gladly welcomed.

The annual report by Mr. C. E. Osborn, the Secretary, set forth that during 1898, 520 adults and children joined the Society. The monthly lectures have been well attended. Four shows were held during 1898. The grand total of entries for the four shows was 1272, in 218 classes; the prize-money paid was £100, in addition to several medals. The juvenile section (prizes are offered for children at all the exhibitions) is being reorganised and extended, and a schedule of prizes is being prepared, to be competed for by children in the elementary schools. It is proposed to supply each child with a plant suitable for cultivation in a pot, which will be previously potted, and in addition a packet of seeds will be given to each child. They will be required to pay one penny for the two, and the children will have object-lessons in potting, &c.

DEVON AND EXETER GARDENERS'.

FEBRUARY 1.—At a meeting of the Society, held on the above date, a paper upon "Liliums and Lily of the Valley" was read by Mr. James Mayne, gr. to the Hon. Mark Rolle, Bicton.

Interesting and useful remarks were made upon the cultivation of L. longiflorum and its varieties, L. auratum, L. giganteum, L. speciosum, &c. In the case of outdoor culture, Mr. Mayne reminded his hearers that Rhododendron and Azalea beds offered very suitable sites and conditions for Liliums, but if tall-growing Lilies be grown together in beds, it was necessary to screen the surface of the ground with such a plant as Mesembryanthemum cordifolium in order to prevent the sun from unduly drying the land. L. candidum must be re-planted when the flower-stem has withered if circumstances make it necessary to move the plant, as this species is more or less active throughout the year.

A south-westerly aspect is the ideal one for beds of Lily of the Valley.

WARGRAVE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

FEBRUARY 1.—Mr. W. H. Scott read a paper on "Hardy Fruit Culture for Pleasure and Profit."

He took the instance of a person having a piece of ground for fruit culture only. Mr. Scott described how a piece of ground intended for the cultivation of fruit-trees should be planted with Apples, Pears, Plums, and Cherries, standard, pyramid, and cordon trees, and the relative advantages of each were described. Advice was given respecting Currants, Gooseberries, Raspberries, and Strawberries; as these could be planted between the rows of large trees, it was essential that choice varieties and free-croppers be chosen. The market garden method of culture was described. Many of the members took part in the subsequent discussion. At the instigation of the chairman, practice in judging plants was undertaken, and created an amount of interest amongst the members.

BRISTOL AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

FEBRUARY 2.—The fortnightly meeting of the Society was held on the above date, Mr. W. A. GARAWAY in the chair. A lecture was given by Mr. A. MOORE-SARA, of Stoke Bishop, on "Spores and Seeds, and their Germination."

In an interesting manner, he showed the origin, formation, and stages through which a Fern spore passed until fertilisation was complete, and a Fern plant eventually established. Treating of seeds, he also, in the same way, described the formation of a flower, the fertilisation of the seed, and subsequent germination, and explained the main points of difference between the germination of spores and seeds, illustrating the whole with blackboard diagrams. The lecture, though necessarily a little technical, was much appreciated, and the hope was expressed that Mr. Moore-Sara would again favour the Society with a paper.

HAMILTON HORTICULTURAL AND FORESTRY ASSOCIATION.

FEBRUARY 3.—The first lecture under the auspices of this new association was delivered on the above date in the Y.M.C.A. Institute by Mr. DEWAR, Curator of the Botanic Gardens, Glasgow. The Rev. S. M. B. PATERSON, President of the Association, occupied the chair, and there was a good attendance.

The lecturer dealt with the practical side of a gardener's life, and gave shrewd and sound advice as to the method to be employed in perfecting their art. The lecture was made bright and interesting by several biographical sketches of famous gardeners who had made their mark in different spheres of gardening work, &c.

At the close a discussion followed, in which the chairman and several members took part. Altogether, a good beginning was made, and the Association bids fair to have a long and useful career. *J. M.*

NATIONAL CHRYSANTHEMUM.

February 6.—The annual general meeting of the National Chrysanthemum Society, which took place at St. Stephen's Hall, Royal Aquarium, on the above date, was a credit to the Society.

The feeling has latterly been far too common that the fellows and members cannot meet for the discussion and transaction of business without exhibiting a spirit of division and squabbling unworthy of everyone concerned. Monday's meeting will in large measure dissipate such an idea, that perhaps in the near past has not been totally devoid of justification. There were quite sufficient items of inflammable nature upon the agenda (including various propositions for the alterations of rules) to have provoked a serious conflagration, but they did not. No more suitable gentleman than C. E. Shea, Esq., a vice-president of the Society, could possibly have fulfilled the duties of chairman, and his influence and example had untold effect upon the conduct of business.

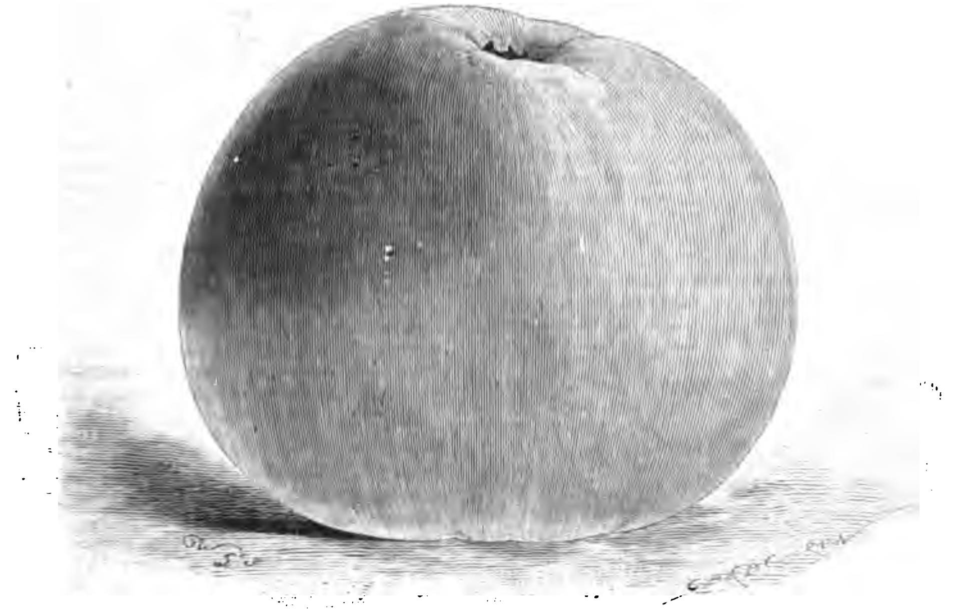

Fig. 38.—New Apple, Lady Pilkington.

Recommended an Award of Merit by the Royal Horticultural Society's Fruit and Vegetable Committee, on Jan. 31. Much resembles Dumelow's Seedling, but the flesh is softer, and more agreeable to the palate. Exhibited from the Southport and Churchtown Botanic Gardens.

REPORT OF EXECUTIVE COMMITTEE.

We had first to listen whilst the minutes of the last annual meeting were read by the Secretary, and after this to the reading of the annual report of the Executive Committee, which took a considerable time. This report has been posted to all members of the Society, and it is not necessary to reproduce the text here. The usual optimistic tone of previous reports is again apparent in that for the past year, and the committee in the first paragraph, no doubt truthfully say, "The close of the year 1898 finds the National Chrysanthemum Society still at the head of those societies having for their object the cultivation and exhibition of some particular flower." The work of the Classification Committee in regard to the classifying of doubtful incurved varieties, and to the drawing up a list of too-much-alike varieties, is described. The announcement is made that the Directors of the Royal Aquarium Company have promised to contribute an additional sum of £75 towards the prize schedule of the November show. The lighting of the building has been improved, and members of the Society will, in future, be better able to obtain refreshments at moderate charges. Then there is reference made to the report of the "Sites" sub-committee, in favour of the Crystal Palace, to the awards made to novelties, the need for a supplementary catalogue, and to the Conference that was held in October upon the "rust" fungus. The report concludes with thanks to the President, Sir Edwin Saunders, for his continued interest in the Society and gifts of prize-money, and to all other donors of special prizes

THE BALANCE-SHEET

showed that the annual subscriptions for the year had amounted to £270 15*s.* 6*d.*; Foreign members' subscriptions, £7 11*s.* 1*d.*; Royal Aquarium Company, £330; affiliated societies' medals, certificates, &c., £66 11*s.* 3*d.*; affiliated societies' fees, £62 4*s.* 6*d.*; and other smaller items, making a total receipt, including cash in hand at last audit, and the sum of £47 15*s.* 4*d.*, drawn from the reserve fund last March, of £987 10*s.* 7*d.* Expenditure included the sum of £541 5*s.* for prize-money and medals, being a few pounds more than in 1897, and the usual management items, which have been considerably curtailed.

Following the reading of the report, Mr. Shea (Chairman) made a speech, in which he said that it had been stated in the Press that the popularity of the Chrysanthemum was on the wane. As a flower for cultivation, he thought it very unlikely that this would be the case for very many years yet. That it blooms during autumn so unsparingly, and is so easy of cultivation, that it is the poor man's flower equally with the rich, places the Chrysanthemum on a throne from which it will with great difficulty be ousted. But there was the exhibition point of view. The stern evidence of figures must be given attention. The present balance-sheet showed a falling off from members' subscriptions of about £28, and a lesser sum from the fees paid by affiliated societies. Unless this downward tendency was stopped, there was no seeing its end. The management expenses have been curtailed, but there was a degree beyond which this could not be carried. Then followed a very astute plea for union among the members, and particularly that the meeting then commenced should be characterised by business-like behaviour. It had been said that, unlike other flowers, the Chrysanthemum begot in its votaries a certain degree of combativeness. Perhaps the delicious fragrance of the Rose had some effect in soothing the mind of excitable persons; but Mr. Shea thought the members had an excellent opportunity that evening to show that its meetings might be held just as quietly as those of other societies.

The adoption of the report and balance sheet was then formally proposed by Mr. Seward, and seconded by Mr. A. Outram. Mr. J. W. Moorman had some remarks to make before the motion was put to the meeting. He thought they might be proud of such a balance-sheet as was presented. A year ago the balance-sheet showed a false balance, which, however, the members decided to erase, and they then discharged their liabilities by abstracting a sum from the reserve fund. The year 1898 was, therefore, commenced without a balance at all, but he was pleased to say that they now had £18 0*s.* 11*d.* in cash at the bank, and there had been contributed in various ways during the year a sum of £20 6*s.* 1*d.* The Society had, therefore, made a profit in the year of £38 2*s.* 6*d.*, notwithstanding that they had paid more money in prizes than ever. He was now satisfied that the Society could not be rightfully charged with expensive management. Mr. Moorman then criticised various items in the assets, which were, however, satisfactorily explained subsequently by the Secretary. This veteran cultivator concluded his speech by declaring that he had been growing Chrysanthemums since 1865, and he was unaware of the least sign of diminished enthusiasm for the flower.

Speaking to a question raised by Mr. Simpson, a plea was made by Mr. Newell that the medals and certificates be permitted to affiliated societies at a less price than obtains. The Society would do well not to seek for so large a profit upon them.

The report and balance-sheet were then carried by acclamation.

Mr. Berridge next proposed a vote of thanks to the auditors, which was responded to by Mr. A. E. Stubbs.

ELECTION OF OFFICERS.

On the proposition of Mr. Bevan, seconded by Mr. H. A Needs, Sir Ed. Saunders was enthusiastically re-elected President, amidst general satisfaction that at the age of eighty-five years, Sir Edwin still maintains his interest in the flower.

The position of Treasurer, rendered vacant by the unexpected retirement of Mr. Ballantyne, was filled by the appointment of Mr. C. E. Wilkins (Swanley). This was done on the motion of Mr. J. W. Moorman, seconded by Mr. H. J. Jones.

Mr. Percy Waterer was unanimously elected to the chairmanship of the Executive Committee vacated by Mr. T. W. Sanders, Messrs. Bevan and Moorman having been nominated to the Vice-Chair, the appointment was deferred for decision by ballot. Mr. C. Harman Payne was re-elected Foreign Corresponding Secretary.

In the election of general secretary, there was another surprise for the meeting. It had been freely stated during the preceding week that there would be at least three nominations to the position. It was not so, and the present Secretary, Mr. Richard Dean, was unanimously re-elected with a considerable show of enthusiasm.

Mr. Berridge was elected auditor on the motion of Mr. Moorman, seconded by Mr. Rundel (Leicester), in the place of Mr. A. E. Stubbs who retires.

Nominations were then taken for gentlemen to serve on Executive Committee. There were, altogether, fourteen new members necessary. At a subsequent moment the following gentlemen were declared elected:—Messrs. E. Beckett, C. Gibson, H. J. Jones, A. Outram, D. B. Crane, W. Davey, Mr. Kenyon, T. W. Wilkinson (Royal Aquarium Company), J. McKerchar, C. Blick, J. W. Simmons, Alex. Wright, G. Walker, and W. A. Sturrock. The order of the names was that given in the poll by the number of votes recorded.

The nomination of Mr. T. W. Wilkinson was proposed by Mr. J. W. Moorman, who spoke with appreciation of the manner in which the Aquarium Company had now met the Society, and expressed his belief that Mr. Wilkinson would be able to render material help. The ballot in the case of the vice-chair was in favour of Mr. T. Bevan.

Upon the proposition of Mr. Moorman, seconded by Mr. D. B. Crane, it was resolved to elect Mr. T. W. Sanders a vice-president of the Society; and on the motion of Mr. Bevan, seconded by Mr. J. H. Witty, a life honorary Fellowship of the Society was conferred upon the same gentleman, in recognition of his services as chairman of the Executive Committee and in other capacities.

AMENDMENTS TO RULES.

To consummate the agitation that certain members of the trade have indulged in during last year in regard to the awarding of the Society's medals, various alterations to the rules were proposed by Mr. W. Wells. These were, in effect, to prevent the Society from giving medals to other exhibits than Chrysanthemums, and to these only when the exhibits have been the *bonâ-fide* property of the exhibitors for a period of three months.

In place of the alterations proposed by Mr. Wells, the Chairman suggested that Mr. Wells would propose a new rule embodying the restriction wished. In the end, however, neither the one nor the other was done, as Mr. Wells failed to secure any support. A technical addition to Rule III., proposed by Mr. R Dean, was by leave withdrawn.

In regard to Rule IX. Privileges: an amendment was recommended by the Executive Committee, apparently with a view to preventing delegates from affiliated societies from taking any part in the voting at the annual meetings of the mother-Society. Members of affiliated societies (especially Mr. Rundell, Leicester) were, however, on the alert, and in the end, the recommendation was not only rejected, but words were inserted in the rule positively stating the right of the delegates to attend and vote at such meetings. Securing this triumph, the next recommendation of the Committee to the effect that the delegate should be a *bonâ fide subscriber* to the society he represents was accepted joyfully.

Rule XIV. was modified in order to insert the regulation that the Schedule Revision Committee be appointed at the first meeting of the Executive Committee held after the annual general meeting.

Rule XV. will now provide that the election of judges will be effected by means of voting-papers.

Rule XVII. was made to explicitly declare that the Finance Sub-Committee shall be elected annually after the first meeting of the Executive Committee held after the annual general meeting.

This concluded the business of the meeting, save the usual votes of thanks and election of new members. There were probably about 150 members present, in spite of the very disagreeable character of the weather. St. Stephen's Hall afforded more than ample room for the company, but although certain efforts were made by the management to warm the building, the intense cold and draught was such that members could not retain their seats without the greatest discomfort, and the two heating-stoves were the centres of groups during the whole proceedings, which lasted about two-and-a-half hours.

ENQUIRY.

Maréchal Niel Rose.—1. Is there a permanent cure for canker in this variety? 2. What is the cause (probably fungus attack)? 3. Are Roses best planted below the graft, so as in time to get on to their own roots? This is a question upon which we should be obliged to our rosarian correspondents if they would favour us with their opinion.

ANSWERS TO CORRESPONDENTS.

Acalypha Sanderi (hispida): *Chas. B.* The plant will take little or no harm for ten days' sojourn in an apartment if the temperature does not fall below 50°.

A Non-fruiting Quince: *P. C. P.* Under certain unfavourable conditions of growth—as for example, under the shade of large trees, or on the north side of a wood, where, owing to the lack of sunshine, the wood would not manure, or a very wet soil where growth being late extending into autumn, the same thing might occur. Given age, say 10 to 12 years, and a sunny site, the Quince fruits satisfactorily.

Antirrhinum Seedlings: *Novice.* If the plants are not spoiling in the boxes, wait till the middle or end of the next month before planting them out of doors. If much crowded, transfer them where standing thickest to other boxes. Afford a hardy kind of treatment.

Begonia x Weltoniensis: *Novice.* The old plants will be the best to rely upon provided they have been suitably treated, that is, cut down after the stems had matured subsequent to flowering last summer and autumn, and kept dry in a temperature a little higher than that of the greenhouse. A place under the plant-stage is suitable for them. In the present month shake them out of the old soil, and re-pot them in equal parts of loam, peat, and leaf-soil, with plenty of sand, and grow them on in an intermediate house until they flower. In warm districts the plant does well out of doors till flowering time. Cuttings may be struck in March or in July, and the early-struck ones may be grown in a frame or in the open.

Books: *H. J. J.* *The Propagation and Improvement of Cultivated Plants*, by F. W. Burbidge. Published by Blackwood and Sons. A note addressed to the Secretary of the Royal Horticultural Society, 117, Victoria Street, S.W., would elicit a reply in reference to the book being in the Lindley Library.—*Young Hand.* You should obtain *Soils and their Properties*, by Dr. W. Fream, one of Bell's Agricultural Series, published by G. Bell and Sons, York Street, Covent Garden, W.C. —*A. Urbanczyk.* *The Canadian Horticulturist*, published monthly by The Ontario Fruit Growers' Association, Toronto, Ontario. *Meehans' Monthly*, published by Thos. Meehan and Sons, Germanstown, Philadelphia.—*A Foreman.* You will find Mr. Barron's *Vines and Vine Culture* a trustworthy manual; and the late Dr. R. Hogg's *Manual on Fruits* is the best we have after Dr. Bull's *Herefordshire Pomona.* We know of no special manual on Figs in the English language, and their cultivation is so simple that scarcely any is needed. Hogg's *Fruit Manual* contains a lengthy list of varieties, together with descriptions, but no cultural details. Good directions in regard to culture are given in Thomson's *Gardeners' Assistant.* Williams' *Orchid Grower's Manual* is one of the best books on the cultivation of Orchids. It can be obtained at the Victoria and Paradise Nurseries, Upper Holloway, N.—*G. F.* Try and obtain from a seller of second-hand books a copy of *Cool Orchids, and how to Grow Them*, by F. W. Burbidge. The work is out of print.

Cobœa scandens: *W. J. S.* Best raised from seeds sown on a mild hotbed in March. The plant can also be struck from cuttings of the new shoots obtained from plants started in moderate heat in February. The cuttings strike freely in a sandy soil, in bottom heat of 75° to 80°, under a bell-glass.

Correction.—In answer to "A. S. W.," p. 80 of the last issue, for Lilium lancifolium Harrisii, read L. longifolium Harrisii.

Cyclamen Flowers with More than the Usual Number of Petals: *A. H.* This is by no means uncommon, and we have seen many specimens similar to those you send. The variability to be seen in strains of Cyclamen latifolium was illustrated in these pages on several occasions last year. See *Gardeners' Chronicle*, March 5, 1898, p. 135; March 19, 1898, p. 173. Also in *Gardeners' Chronicle*, 1897, January 30, p. 70 and 71; May 15, p. 317; May 22, p. 331.

Extirpation of Water Lilies in a Lake 6 feet deep: *G. G.* If the water can be run off to a great extent, the work of tearing up the plants by the roots should not be so difficult a matter. You will require some strong drags or long toothed rakes, or even field-harrows. The work will, however, if performed in that manner, require several years to make a thorough clearance of the plants.

Fungus on Roots of Myrtle: *R. M. R.* The fungus, the mycelium of which you send, is common on decaying vegetable matter under ground, but the species cannot be determined in that stage. The state of the soil in borders under glass often engenders fungus of the nature of this one. Quicklime if used in sufficient quantity would doubtless extirpate the same, but it would destroy the plant. It was the proper course to take to dig out the entire mass of infected soil, replacing it by loamy soil ⅔, leaf soil ⅓, and sufficient sand to keep it open and aërated; see also to the drainage, that this is efficient, a great deal depending upon that. Every particle of fungus-infested matter about the roots, and decayed roots, should be removed.

Hole in Clay Soil in which a Fruit Tree is placed: *Quite an Amateur.* A 3-feet square hole, 4 feet deep, dug out in clay, is not a suitable place in which to put any fruit tree, as it will, while affording very little space, collect a great deal of surface-water, which as it could not escape through the clay, would act injuriously on the tree. The flooring of slates would hinder the roots descending into the clay, which, however, they are not likely to do. A better method of dealing with the matter would be to lay in pipe or rubble drains, 3 to 4 feet deep and 10 feet away from the trees, and lead them into a dry well or an outlet drain; then trench the soil to the depth of the tillage soil, turning up the bottom spit *in situ*, and mixing with it lime and rough rubbish, stable litter, cabbage stalks, anything in fact that will add to its porosity, and afford plant food that will be available in time to come. Having done this, wait a month before planting the trees. You may put slates, stone slabs, or a bed of concrete 3 feet from the surface, so that the tap-root does not descend further than that. In planting take out a wide hole so that the roots may be spread out at full length, and do not cover the uppermost with more than 6 inches of soil. Fresh loamy soil and a small quantity of rotten dung if the staple is poor, should be used about the roots when planting the trees.

Luculia gratissima: *W. J. S.* May be struck from cuttings of young shoots taken in June, but it is not a very satisfactory method; and layers or imported seed give the quicker results. The colour of the flowers of L. gratissima are pale rose. The plant is an evergreen. The best kind of soil is fibry loam two-thirds, peat and leaf-mould one-third, and plenty of sharp sand.

Maggots in the Shoots of Currants: *Quite an Amateur.* The insect is Ægeria tipuliformis, the larvæ of which bores the stems and shoots of the Red Currant, eating out the pith and weakening the bushes. As a remedy, cut off in spring and autumn all hollowed shoots and snags and burn them.

Names of Fruit.—*G. H.* Apple, Annie Elizabeth. —*E. D.* Cannot be recognised, so much bruised. —*G. F. Brotherston.* 1 and 3, Blenheim Orange; 2, King of the Pippins; 4, Mère de Ménage; 5, Warner's King; 6, Green Balsam; 7, Twin Cluster.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—F. P. D.* Labels detached, but the plants are identified as follows: 1, Cymbidium giganteum, the large single flower; 2, Cymbidium sinense, two flowers on upright stalk; 3, Cattleya Trianæi, a very good variety; 4, Epidendrum aromaticum, the pair of fragrant flowers. — *T. J., Lostwithiel.* Æschynanthus speciosus.—*E. D.* 1, Maranta zebrina; 2, Eulalia japonica variegata; 3, Oncidium flexuosum; 4, Zygopetalum Mackayi; 5, Bulbophyllum Careyanum; 6, Dendrobium Pierardi, so far as we can judge without seeing flowers.—*E. S., Birmingham.* 1, Nephrolepis tuberosa; 2, Polypodium pustulatum; 3, Lygodium japonicum, a climbing Fern.—*A. F., Uckfield.* 1, Cypripedium concolor; 2, Cœlogyne lactea; 3, Dendrobium Pierardi; 4, D. primulinum.—*T. T.* Dendrobium Bancroftianum.

Orchids for Intermediate Houses: *G. T. Intermediate* Brassia Lanceana, B. Lawrenceana, B. maculata, B. verrucosa; Burlingtonias, candida, decora, fragrans, and others Cattleyas, Acklandiæ, amethystoglossa, bicolor, chocoensis, guttata, gigas, labiata, Mossiæ, Trianæi, Warneri, Wagneri, and others; Colax jugosus: Cymbidiums, eburneum, Mastersii, giganteum, and pendulum; Cypripediums, caudatum, Dominianum, Schlimi, and many more; Epidendrums, bicornutum, macrochilum, prismatocarpum, and nemorale; Lælias, cinnabarina, elegans, præstans, purpurata; Maxillarias, grandiflora, luteo-grandiflora, picta, venusta, &c.; Miltonias, Clowesii, Regnelli, and spectabile; Oncidiums, ampliatum, crispum, incurvum, Kramerianum, luridum, ornithorhynchum, papilio, sarcodes; Sophronitis cernua, grandiflora, and violacea; Trichopilias, coccinea, crispa, Galeottiana, suavis, tortilis; Zygopetalums, crinitum, Mackayi, macranthum, and rostratum. We will give you a list of cool-house species in our next issue.

Outside Plants for Cross-Breeding Purposes: *H. J. J.* There are various methods of protection from chance fertilisation, such as frames, handlights, fine muslin covering; also similar coverings to the ventilating parts of frames, &c. A flower or a number of flowers may be enclosed in a muslin bag previously to expanding.

Peach-trees and Manure: *Novice.* If the trees are in good health, and require merely a little assistance to cause the production of good wood, and increase the size of the fruits, matters which only the person on the spot can determine, you may apply lime in sufficient quantity to hide the soil—finely broken plaster will do; potash 2 to 3 oz. to the square yard, pricking this in; and finally a mulch in summer of horse-droppings and short litter 3 inches thick. If the soil be retentive, use only droppings, and prick them in; and the mulch leave on the surface if the land be light.

Richardias not Opening their Spathes: *A. K.* The plants are either checked by some cause, as loss of roots, &c., or they were too long or too severely dried off. It is a cultural matter, doubtless, which can only be settled by one having a full knowledge of the past and present treatment of the plants.

Seeds Germinating within a Gourd: *W. K.* The specimens you send are very interesting. It is not an infrequent occurrence, however, for seeds to so germinate in the case of Cucumbers, Melons, Oranges, the Papaw and other fruits. In your specimen the cotyledons were partially green, although in the absence of light. This circumstance has been explained by Prof. Church on a former occasion as probably due to some modification of the rays of light, which are capable of "greening" although their energy be altered in character. Respecting the Orchid sent, see next week's issue.

Shy Pollen-bearing Carnations: *H. J. J.* We do not suppose that you can do anything beyond exposing the pollen-bearing anthers to the light by the careful removal of adjacent petals.

Tree Fern: *E. V. G.* In the absence of any information, we can only surmise the cause of the death of the plant. It may be gas, bad drainage, improper cultivation, &c.

Use of Superphosphate of Lime in Vineries and Peach Houses: *W. G.* The chief aim being the sweetening of the soil and the rendering active the inert vegetable substances in the soil; you would find pulverised (recently slaked) lime the best to use. It can be spread half an inch thick on the surface and left there, or just turned under. It should not come at the first in direct contact with the roots. If you use bone meal at the same time it will be a wasteful proceeding. On the Peach border you might use potash at about 2 ozs. to the square yard in addition to the lime, or alone.

Communications Received.—Barr & Son—E. W. B.—F. W. B. —W. M. B.—A. S. C.—Geo. Farmer.—W. J. B.—P. P.—Murr.—Crocus.—D. C. Crombie.—D. T. F. (too late).—Nurseryman.—A. R.—Florence Petty.—H. Correvon.—C. K. S.—H. A.—G. Nobbs.—A. D.—F. A. W.—W. N. C.—C. E.—Herbe & Wulle.—G. T.—A. C.—C. H. P.—A. T.—A. J. L.—H. T. M.—A. C. F.—W. H. S.—S. A.—A. P.—J. J. W.—H. P.—H. H. T.—R. B.—J. H.—H. W. W.—J. May.—J. M.—J. K.—J. H. W.

Specimens and Photographs Received with Thanks.—J. Macbar.

DIED.—On the 7th inst., at "Greenlands," Reading, Ellen, widow of the late Alfred Sutton, Esq., in her 76th year.

(*For Markets and Weather, see p. xiv.*)

THE
Gardeners' Chronicle

No. 634.—*SATURDAY, FEB.* 18, 1899.

ROME.

(Concluded from p. 65.)

I HAVE sometimes had a dream of what the Colosseum might become if it were only clothed with a studied and deliberate intent. How Ramondia pyrenaica would find a dwelling-place in many a damp and dark recess, how Dianthus cæsius would cling with pleasure to the walls, how Verbascum lychnitis (which adorns Haddon Hall) would soon spread everywhere over the place; how Erinus hispanicus would be at home, how Rosa Wichuriana would like to fling itself in great lengths over the stones, how Mesembryanthemums would glisten in the sun—all these, and many more that might be named, would like to have such a chance; but the dream is one to be checked upon the instant, the Colosseum would never respond to such a covering as that. It never could have borne to be decked out in festal robes. What Dr. Arnold called "its inexplicable beauty and solemnity" would be lost, and that sweet melancholy aspect which it had in days gone by was owing in part to its left-alone condition, and and to the tangle of shrubs and plants.

There are two plants beyond all others whose comparative absence, I think, must be regretted in the Colosseum of Rome; one is the common Wallflower, which has so prettily been called "Desolation's Dower," and which used to lighten up the old crumbling walls and seem quite at home there—a ruin is ruined to my mind if Wallflowers are not growing in quantity over it, there is something quite unnatural in their absence, and their presence is an ornament for decay; and the other is the Caper-plant, which has a most extraordinary affinity for old waste places, and finds them out and seems to love buildings when all use for them has passed away. Its home used once to be amid the fallen arches and grass-grown colonnades of the neglected Colosseum, and it threw itself in great lengths from stone to stone with its pendent branches and smooth shining leaves and large white blossoms with purple stamens that waved so pleasantly in the wind. All this is for the most part over now, for though the Caper-plant still abounds in the vicinity, and roams as it likes to do in the Palace of the Cæsars on the Palatine Hill, it is under an interdict in the spot which, of all others, suited it best, and its white cascades of blossom no longer stream down in the Colosseum which it used to adorn so well, and with whose fallen state it seemed to be in closest sympathy. It is just exactly the plant which ought to be there, and which would be there beyond a doubt in great quantity but for the mischievous interference which has taken place.

I have mentioned a name above, that of Mr. Dwight Benton, about whom I venture to say more before this paper is brought to an end. The mantle of Dr. Deakin has fallen upon the shoulders of Mr. Dwight Benton in everything that appertains to the flora of the Colosseum and of the Roman ruins generally. This gentleman takes the greatest possible interest in the matter, and being both a skilled botanist and also an artist, he has qualifications for his pursuit which do not belong to everybody. He is an American, and for something like twenty-six years he has been living in Rome till lately as Consul-General de la Republic de Hawaii pour l'Italie. During all this time he has kept his eyes open for anything of botanical interest, and during the last eight of them he has had a fixed object in view in the way of working up the flora of the Roman ruins, and bringing his description up-to-date. He does not quite go upon the lines which Dr. Deakin followed, but takes a wider area, the Colosseum being embraced in it. He was very kind to me during my visit to Rome, and allowed me to handle the proof-sheets of his forthcoming book, and to talk to him about them. Not a few things of great interest I have heard from his lips. As might be supposed, after his long residence in Rome his mind is saturated with the lore and traditions of the place, and so far as plants are concerned he has spared no pains about them, always making his notes on the spot, and bringing home his specimens so that an after verification might be made. To those who have a twofold love in their hearts—the love of Rome and the love of plants as well—it may with confidence be said that Mr. Dwight Benton's guidance will be a very acceptable aid, and his book will be constantly in their hands. I said to him, "I hope it will not be a very expensive affair, and that it will not cost more than a pound." He replied that the price is not yet settled, but he did not think it would come to so high a figure as that. It goes upon the general plan in such cases as this—first comes a scientific description, and afterwards are added more general and ordinary remarks.

I will mention some two or three things about which I am indebted to him, and which I think are of interest. One of his proof-sheets ran in this way, about my favourite Caper-plant:—"This beautiful plant is found everywhere as an adornment to the relics of antiquity. Its long pendent stems hang in graceful curves from the crevices of old walls, and covered as they are with smooth, shining leaves and conspicuous flowers, form most beautiful accents and breaks in the otherwise monotonous tones of a ruin. Its flowers open only towards evening, and exhale a most delicious odour. Many attempts have been made to introduce it into cultivation, but it pines away under the fostering care of the florist, preferring its native niches in walls, where it seems to extract some unknown nutriment from the stones themselves. It thrives, however, in rocky and barren situations, specially when left to itself to spread in old Olive-orchards, &c. The species, C. spinosa proper, is rare, but the variety rupestris, is most abundant, and differs in its shorter leaf-stems, and in the absence of the curved spines at their bases." What strikes me most about this is, that it explains what I in my ignorance could never make out before. The whole plant, so far as I have had it in my hands, has always been quite smooth and spineless, and I never could see how it came to be called spinosa, except on the *lucus a non lucendo* principle, which is so utterly absurd. It now appears that I never have had anything to do with the species Capparis spinosa proper, but that only the variety rupestris is familiar to me. The other point is, that with all due deference to Mr. Dwight Benton, I do not think that Capparis spinosa var. rupestris is so intolerant of cultivation as he imagines it to be. I have had it off and on upon my rockery for many years, and I have it still, or, at any rate, I could have answered for that, towards the end of last summer, when I happened to be at home. It must be grown in full sunshine, and will pine away in the shade, and the rubble from an old wall cheats it into the belief that it belongs to some "relic of antiquity," and it is happy accordingly. But this is nothing at all. I would only say, let those who love Capparis spinosa, as I do, for many an old association's sake, not be deterred from trying it. Seek to make it think that it is in the Palace of the Cæsars, or on the Colosseum of Rome, and it will like you at once.

But another piece of information which I had from Mr. Dwight Benton is almost more interesting than the above, it is one of those very strange things which seem to defy explanation. When excavations were lately being made on the Palatine Hill, and the ground was much stirred and dug about, a large crop of a very unexpected plant made its appearance, and Nicotiana glauca, which belongs to the La Plata countries, was all over the place. Mr. Benton told me that this has been a matter of great interest to the botanists of Italy—especially to one whose name I forget, and who is a great authority, and lives at Pisa; but so far it has been a cause only for wonderment. We were talking about Cyclamens, and my instructor incidentally said there is plenty of reason why they should be called "sowbread," inelegant though the appellation may be. Cyclamens are known to be the staple food of the wild boar of Italy, &c. I only wish I had a tithe of the knowledge which Mr. Dwight Benton has both about Rome and about plants.

I cannot bring this letter to a close without expressing the fervent hope that the mischief which is being done to the Roman ruins will not go on for ever. The name of Pope Pius IX. deserves no "exornavit" after it so far as they are concerned, and his servant Rossa will long be remembered as having spoilt much of what he was so ready to touch. If only the present generation could keep their solicitude for the splendid ruins under their charge as much as possible to themselves, things would come right after a time.

The Colosseum only wants to be left alone. If Charles Dickens was right when he said that in his day it was crumbling away at the rate of one inch a year, why should it not be so? There are a good many inches and a good many years still remaining, and at that rate it would surely be better for it to be highly attractive as long as it lasts than to last to a very remote future, and to be forbidding in appearance all the way through.

Left alone the Colosseum would be certain to have its mysterious sweetness all come back to it. As it were, an invisible hand would cover up all its deformities, and drape it once again with a veil of loveliness. The Ferns and the mosses, the plants and the shrubs, would return to the spots which seem made for them, and which would receive them with the utmost alacrity. The winds would do their part in this great adornment of the place—birds may be trusted for such an office as that; and though we, of the generation to which I belong, can never hope to see the Colosseum again as I have seen it in days that have passed away, our children, if ever they come to Rome, will find that tangle of vegetation which seems to carry a message along with it to our very hearts; and they will look on one of the sweetest and most pathetic spectacles on which the human eye can rest. *Henry Ewbank.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA TRIANÆI MRS. W. H. CANNON.

It is always a pleasure to see that a variety which we have previously noticed has improved. Too often it is to be feared that an exceptionally well-grown plant, blooming under very favourable circumstances, produces a phenomenal bloom, and obtains a varietal name in consequence, and is never again seen but in the ordinary form.

Such is not the case with the two extraordinary forms of C. Trianæi named, for W. H. Cannon, Esq., Vanda Lodge, Twickenham, viz., C. Trianæi Cannoniana, a charming large flower of handsome shape, and delicate peach-blossom tint, similar to some of the forms of C. Schroderæ; and C. T. Mrs. W. H. Cannon, a flower of which is again before us. Its petals are over 3 inches in width, the whole flower of fine proportions and substance, and boldly displaying itself in the manner which lovers of perfect flowers desire. The whole flower is of a clear white, the labellum suffused with a pearl-like blush, and bearing a chrome-yellow band extending from the base to the centre, the front having a bright purple blotch, with broad white margin. It is comparable with C. T. Ernest Ashworth, and that is giving it a very high character.

CATTLEYA PERCIVALIANA.

Opinions generally differ as to the merits of most of the varieties of this species, but when an exceptionally fine form blooms, it is commonly admitted that it compares favourably with any other type of Cattleya labiata in shape and in the richness of its colour, if not in size. A bloom of an unusually fine variety is sent me by C. B. Powell, Esq., The Old Hall, Southborough, Tunbridge Wells (gr., Mr. Dupont), who remarks that in substance and colour of the sepals and petals, a bright purplish-rose, it has resemblance to the best form of Cattleya Lawrenceana. The petals and lip are broad, and finely crimped at the margin. The lip is deep orange at the base, with maroon-coloured markings. The central area is orange-tinted crimson, and shades off to light purple towards the distinct lavender-coloured crisped margin.

CYPRIPEDIUM × LEOPARDINUM (SALLIERI HYEANUM × ARGUS).

A very stately and uncommon variety under this name has been sent me by the Rev. F. Paynter, Stoke Hill, Guildford. In general appearance, and in the glossy surface of the flower, it recalls some forms of C. × vernixium; but the flower is larger and more effectively coloured. The upper sepal is of a rich yellow tint at the base; the central portion of purple, and the margin white with rosy-purple markings. The petals, which show the influence of C. Argus distinctly, are of a bright yellow colour; the upper halves and blade are tinged with reddish-purple on two-thirds of the basal portion, and also carry dark chocolate-brown spots. The lip is greenish-yellow, tinged on the face with reddish-rose. The staminode is yellow, with a green central boss. The whole flower is a curious blend of C. Argus, C. villosum, and C. insigne.

CYPRIPEDIUM (PAPHIOPEDIUM) × CALLIOPE, *new gard. hyb.*

A very striking, though not showy, hybrid, its great size, as with C. × Chas. Canham, being its chief characteristic. The upper sepal, which is abruptly folded back, is bright green, with a clear white margin, a distinct band of purple up the midrib, and some half-dozen lighter purple forked lines following the veining of the surface. The petals are yellowish-green, with a band of purple up the centre, a dark green reticulation, and pale rose tinge on the outer half. The lip is greenish-white, with a slight rose tint. In this instance, as in some others, I have noted the blackish warts so conspicuous on the upper margin of the petals of C. callosum are quite obliterated, although it was the seed-bearing parent, the margin being simply white. Lower sepal greenish-white, with darker green lines. Staminode changed from the horseshoe-shaped outline of C. callosum to a two-lobed plate, resembling a pair of elephant's ears, whitish, with pink tint, and with an indistinct green reticulation in the centre. It is a bold flower, measuring 7 inches broad, and over 5 inches in length, without spreading. Leaves, pale green, with a close dark-green reticulation.

It was raised from callosum ♀, Lathamianum ♂ (Spicerianum ♀, villosum ♂), and flowered by Walter C. Clark, Esq., Orleans House, Sefton Park, Liverpool, who considerately sent me a flower and leaf of each parent to compare with it. *James O'Brien.*

EPIDENDRUM UMBELLATUM.

A good many plants have been named Epidendrum umbellatum, and some of them have not been Epidendrums at all; but our illustration (fig. 39), taken from a plant which flowered with Messrs. Stanley-Mobbs & Ashton, of Southgate, represents the true plant, a form of which is figured in the *Botanical Magazine*, t. 2030. It is found in South and Central America, and it varies much in habit and in the size of its flowers, but in all the forms the peculiar thick green leaves and translucent pale-green flowers are constant features. This plant was recommended a Botanical Certificate at a meeting of the Royal Horticultural Society on January 31.

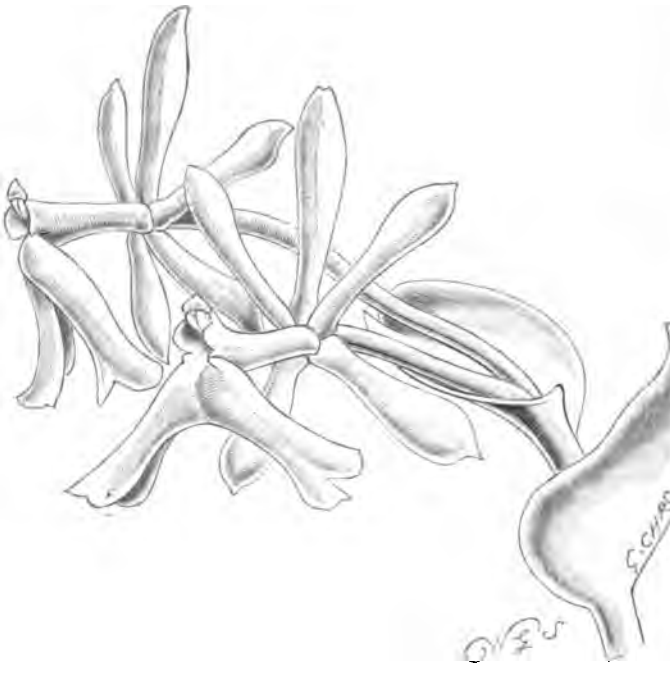

Fig. 39.—Epidendrum umbellatum.

DISEASES OF THE VINE.

(*Continued from p. 17.*)

Browning.—"Browning," or "Brunissure," is one of many names given to certain symptoms of disease common on the Vine and other plants. The disease is widespread, varied in appearance, and not easy to sum up briefly. The chief symptom is a general weakening or failure of the whole plant. The young foliage shows more or less discoloration, and tends to become dry. It may only be the leaf-margins which go in this way, or spots of varying size may appear over the whole leaf. Healthy parts frequently continue to enlarge, so that wrinkles or blisters are formed on the leaf, and offer tempting shelter to insects. In extreme cases, the leaves fall off, and the ends of young twigs wither. If the disease appears later and on mature leaves, these show discoloured spots varying from pale green to yellow, brown, reddish-brown, or purple; in other words, autumn colouring comes on prematurely. If the spots dry up, they easily drop out, leaving holes. Leaf-stalks and young wood may also become discoloured. The disease may be found in all stages. Everything indicates something wrong in the nutrition of the Vine; the result will be a loss of fruit in quantity or quality. When the plant is in this condition, various fungi will, no doubt, show themselves, and the ardent fungus-hunter is likely to indicate some of these as the cause of trouble. The appearance of the symptoms just described is said to be most common in moist weather, when mists or fogs prevail, and is most conspicuous in outdoor vineyards with a northern exposure. The disease is not favoured by weather with prevailing sunshine, and a spell of weather of this kind will probably check an attack already in progress. During a moist season the disease seems to become epidemic, and it spreads rapidly, like many fungus diseases. Heavy rains, with good weather between, are said to have no effect in assisting the damage. In regard to soils, those badly drained are most liable, and any treatment, or want of treatment, which makes a soil sodden and impervious to air, are friendly to the disease; on the other hand, all measures making towards good drainage will favour the grower. On plots near each other, with different methods of manuring, the disease is generally found worst where fresh farm-yard manure was used in quantity.

This is one of the diseases said to be caused by the action of Pseudocommis, a slime-fungus we hear much of at present. According to certain French investigators, this fungus causes diseases on innumerable plants, some of which were referred to in a note in the *Gardeners' Chronicle* on July 23, 1898, p. 69. It is described as a minute fungus, somewhat like the club-root fungus (Plasmadiophora) of Turnips, &c. We have just made a critical review of important papers on Pseudocommis, but, briefly, its importance as a parasite on the Vine or any other plant, does not yet seem well proved. It is a tempting prospect to the plant-pathologist to find a fungus, insect, or some other cause to which to refer some of the many diseases of obscure origin. This is exactly what the authors of Pseudocommis claim; to us, however, the evidence given as yet is far from convincing. The symptoms of "browning" in the Vine just described above agree with those given by a supporter of the Pseudocommis theory, but we think that growers will support our view—that the Vine will show disease in this way if the conditions of soil and climate be those indicated, without calling in the aid of any fungus. It does seem a little absurd to believe that every plant disease must be the work of a fungus, insect, or other parasite. For these reasons, we have preferred to class "browning" as a disease caused by defects in cultivation. Many experiments as to remedies have been tried under the assumption that Pseudocommis is the cause of diseases like "browning," but application of sprays or powders generally used against fungi does not seem successful. What does succeed is a clear atmosphere with moderate rains, and a treatment of the soil likely to benefit the general health of the Vines.

The dreaded Californian Vine disease in many ways resembles "browning." It seems to be confined to Grape-growing parts of western North America, and has there been the subject of much special study by qualified experts. They can trace no fungus or insect as its cause. What progress has been made in checking the disease is attained by improved cultivation of suitable varieties.

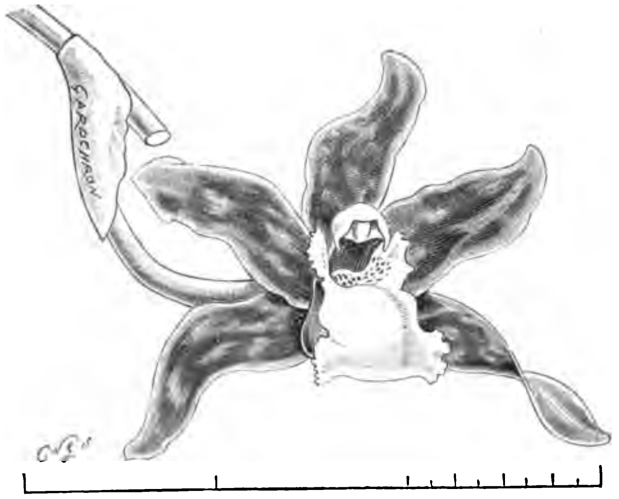

Fig. 40.—Zygobatemania mastersii.

Gumming.

This disease has its origin in the practice of pruning the Vine. When a twig is pruned off, the branch left dies back for a short distance below the cut; at the same time the vessels and other elements of the stem near the wound become stopped up by a secretion of gum, which hardens. This is a natural process, and happens after every pruning-cut on a Vine. Investigations on the cultivated and other species of Vine show that gummy substances are formed in the elements of the second year and older wood; in some cases also in the first year wood. The Vine is, then, a plant which has a tendency to form gum in its tissues. The disease of "gumming" is due to an abnormal formation of gum. The wood breaks down, and cavities are formed filled with gum, which becomes so abundant that it streams from broken places in the bark or from pruning-cuts. It may also harden inside the stem, and choke the tissues, so that no water can pass up; as a result the leaves and new wood wither, and this is accompanied by loss of the fruit-crop. Some investigators say that "gumming" is due to bacteria; others put it down to the action of Pseudocommis, the slime-fungus referred to above; others to a fungus named Coryneum. We prefer rather to take a view supported by very conclusive evidence, namely, that "gumming" is a natural tendency of the Vine, which becomes aggravated into a disease by pruning, over-cropping, and mishandling in cultivation.

In conclusion, the diseases of the Vine described in the present article cannot be traced to the direct action of any fungus or insect, although attempts have been made to do so. Nor is their cure brought about by any of the methods used against parasitic organisms. In every case the disease represents an exaggeration of some condition natural to the Vine plant. "Shanking" is an exaggerated form of the natural way in which Vines get rid of superfluous or weak fruit; "blanching" is an extreme case of paleness natural to the foliage of any plant improperly supplied with food; "browning" is an untimely appearance of autumn tints; "gumming" is an excessive formation of gummy substances found in every Vine. The disease in each case is brought about by methods of cultivation unsuited to keep up the health of the plant. The prevention and cure lies in making the cultivation more suitable. The tendency towards disease is the result of growing for a purpose—fruit production—and neglecting, forgetting, or being ignorant of details necessary to ensure the general health of the Vine. No matter how careful a grower may be of his Vines, it is easy to overlook some detail; this may pass unnoticed for years while it gathers force, ultimately to appear as a disease, probably when a cold spring, a sunless summer, or an adverse season hastens events of this kind. The fault need be no one's, and we can only blame our ignorance as to the requirements of the Vine; the lesson is to try and remedy the defects for the future. It might even be said that if we could cultivate the Vine exactly as it requires, we should probably see less of disease of any kind, including the various forms of mildew, rust, rots, and others, which are doubtless the work of fungi whose first foothold is made easy on weakly plants. The difficulty is to say exactly what is the defect in cultivation; this must be learned by experience. The records of this experience, however, should assist those in need of it. *W. G. Smith, Leeds.*

ZYGOBATEMANIA × MASTERSII.

Our illustration (fig. 40) represents a very interesting cross made by Messrs. Linden, l'Horticulture Internationale, Brussels, between Zygopetalum crinitum, fertilised with the pollen of Batemannia Colleyi. The plant and its flowers are quite intermediate between the parents, and it is altogether a remarkable hybrid. The scape bears several flowers, the sepals and petals of which are green, heavily tinged with chocolate colour, and the lip is creamy-white, with dotted lines of purple around the crest.

SEED TRADE.

Tree Seeds.—Those of the seed trade who are interested in tree seeds, and especially those of Coniferæ, may be interested to learn that in those districts from which seed of some of the species is drawn, the crops are of varying extent. Abies Douglasii is short in most districts, while A. Menziesii is an almost entire failure, but the crop of A. pectinata is good and obtainable at low prices. "It may not be generally known that the wood of Abies Douglasii is very resinous, and makes excellent firewood, even when green. In dead trees the bark and wood are often so full of resin as to burn like a torch, and from its combustibility extensive tracts of forests are burnt every year. Were it not that the vegetable tissues will burn readily, the immense mass of it that encumbers the surface of an ordinary farm on the banks of the Columbia would bid defiance to any efforts that one man could make for its removal during the time of his natural life" (*Manual of Coniferæ*). Larix leptolepis, one of Mr. J. G. Veitch's introductions from Japan, has yielded seeds freely, and prices are low. The Scotch Fir, Pinus sylvestris, has yielded seed very sparingly all over the continent; there is a brisk demand for samples, and prices are advancing. P. excelsa, the Norway Spruce, has yielded a full crop of excellent quality, which can be obtained at tempting terms. P. Larix (Larch) is a plentiful crop, satisfactory both as to quality and price. P. Strobus is also of good quality, germinating freely, and obtainable at average prices. P. austriaca, P. Laricio, P. maritima, and P. Cembra, have so far yielded, that very choice seeds can be supplied at moderate prices.

Of deciduous trees the supply of seeds of Birch and Elm is small, the unfavourable weather during spring and early summer had an injurious effect upon the trees. Of the common Oak there is ample, and there is enough of Beech mast to meet all demands, and the same can be said of the Maple, Birch, Hornbeam, Haws, Ash, Acacia, Broom, the small and large-leaved Limes, and also Furzes. *Pisum.*

NOTES FROM A SCOTTISH MANSE.

Winter for Nature, as well as for the earnest horticulturist, is a period of repose; she is resting from her energies, and increasing, by means of such temporary cessation, her latent strength. Only in rare instances do we perceive any manifestations of what may be termed vegetative activity above the surface of the ground. I have, however, already recorded in the *Gardeners' Chronicle* how the beautiful, violet hued Iris reticulata, gave me an unexpected greeting, such as only a lovely flower can give to an instinctive lover of Nature on Christmas Day. It recalled, by its beauty, the gracious benediction of the Friend of Man: "Even Solomon, in all his glory, was not arrayed like one of these." To the vision of the thoughtful, reverential nature, the splendour of monarchs must always seem garish, when compared with that of the glorious eastern and western flowers. Previously to the appearance of Iris reticulata, my winter garden was greatly gladdened by the naked-flowering Jasmine (Jasminum nudiflorum), which is always very fascinating, with its golden blossoms shining amid its glossy green branches, like a bright and steadfast hope, in the heart of adversity, of vernal beauty yet to come. Probably by reason of the absence of sunlight, most of the winter flowers are destitute of fragrance, which in other seasons would be accounted a serious limitation, but Chimonanthus fragrans, which flowers in December and January, is a striking exception to this general rule. This precious plant should always be pruned immediately after its flowering season is over; but this fact, I fear, is often forgotten by amateur horticulturists, who fail to observe that the shoots which have already blossomed abundantly are of no floral service for the following season.

One of the most graceful of all winter flowers is the Christmas Rose, Helleborus niger, which, though it does not appear to have discovered in my own garden an absolutely congenial soil, succeeds admirably at Logan House in this parish, where also the fragrant Viola odorata, which is cultivated by Mrs. McDonall, blooms profusely in late winter and early spring.

The Duchess of Sutherland makes a specialty of the Snowdrop, for whose cultivation one of her Scottish residences, Dunrobin Castle, in Sutherlandshire, has long been famous. Mr. Matthew Arnold once wrote me as follows regarding this flower:—"I do not know that I have ever mentioned the Snowdrop in my verses, but I have been planting it among my shrubberies, and admire it greatly." But as I afterwards reminded him, he had thus characterised *Iseult*, one of his finest and most delicate creations—

> "Who is this Snowdrop by the sea?"

from which it would almost appear that I knew some of his poems, and especially their charming incidental floral passages, better than himself.

Last year I had the gratification of receiving from Mr. F. W. Burbidge, the Curator of Trinity College Gardens, Dublin (who may be said to have made a special study of spring flowers), a number of fine bulbs of the gigantic Crimean Snowdrop, introduced into this country by Lord Clarinda, which I planted very carefully in a grassy plot opposite my study window, from which, when their large and lustrous, pendulous flowers appear in February (for they come somewhat late), I shall always be able to see them when I am at my work. The majority of my Snowdrops have been planted in leaf-mould, beneath the bare, overhanging branches of trees. In such positions they are in perfect correspondence with their environment, and create at this season most picturesque effects. *David R. Williamson.*

ALPINE GARDEN.

NEW AND RARE PLANTS FOR ALPINE GARDENS AND ROCKERIES.

(*Continued from p. 212, vol. xxiv.*)

Mulgedium cacaliæfolium, Boissier.—Large and good herbaceous plant, with erect stems, growing from 4 to 5 feet, bearing fine and large leaves 1 foot long and 5 inches broad, hastate or triangularly ovate; flowers numerous, deep blue, in small heads joined in large panicles. It is a very showy plant; the seeds were brought to us by the botanist Alboff, from the Caucasus. It seems to like the shade or a half-shady situation, and grows freely in ordinary soil.

Papaver radicatum, Rottboell.—A small form of P. nudicaule growing in the mountains of Scandinavia. The leaves are short and hairy, the stems short, the flowers large, and the calyx very hairy. It grows in any good soil.

Paracaryum angustifolium, Boissier.—A very good variety of Borage, newly introduced from the mountains of Asia Minor. A small and tufted plant, not exceeding a foot in height, and forming a dense bush of narrow, deep green, shining, and somewhat hairy leaves; the flowers are of the most beautiful sky-blue, disposed in corymbose racemes, and open from July to August. The plant requires sun and a dry situation, and likes the rockery, for which it might have been created.

We obtained from Dr. Duthie at Saharanpur, India, another Paracaryum, under the name Paracaryum sp. Hazara. It flowered well last summer, has broad leaves and sky-blue flowers, and seems to be near to P. inanum, although not identical with it.

Plantago uniflora, Hook.—We obtained this from seeds sent from New Zealand three years ago. It is a pretty little plant, with curious, very deeply-toothed leaves; these leaves are variegated, and marked with brown or deep purple veins; the flowers are inconspicuous and rare, but the plant is worth cultivation because of the curious and pretty foliage. It grows well in a sunny rock-pocket.

Platycodon glaucum, Siebold and Zuccharini, of Japan, is a dwarf and glaucous form of the beautiful large autumnal Bellflower, and a very welcome acquisition for the rockery.

Pulmonaria rubra, Schott.—The *Index Kewensis* considers this very showy plant as identical with P. mollis, Wolff; but I cannot admit that. The Pulmonaria rubra is different; its leaves are always destitute of the spots generally so well marked on those of P. mollis, and these leaves are thicker, shorter-stemmed, and narrower than those of the type, mollis. The flowers in P. rubra are brilliant, very showy, of the brightest red, and not turning to blue after fecundation. It is an ornamental plant for the rockery, where it succeeds in any good soil. It flowers from April to June.

Pyrethrum Starckianum, Alboff (in *Bulletin de l'herbier Boissier*, vol. ii., p. 455).—This new and interesting Composite was discovered in the Abchasian mountains in the Caucasus by my late friend, N. Alboff, in 1892, and is a valuable addition to garden plants. It is a white tomentose plant 1 foot high, bearing deeply-cut leaves, and large capsules of flowers with white ligules. It flowers well on sunny places in rockeries or the open ground. *H. Correvon, Geneva, Switzerland.*

(*To be continued*).

SOME EARLY CROCUSES.

We can hardly realise how much we should miss the Crocus, which in spring enamels our gardens with bright colour. With golden-yellow, purple, white, or striped blooms, it fills us with pleasure as we see its flowers expanded in the sunshine of a bright spring day. It cannot with any truth be said that these Dutch Crocuses are not appreciated and admired, but it can be claimed that what are known as the Crocus "species," do not receive a fair share of the attention given to the others. With these a garden may be made more attractive not only because of the greater variety, but also by reason of the succession of flowers produced by the various species. To write of these in detail would, perhaps, occupy too much space, but it may possibly be of service to speak of a very few of the Crocuses which are among the first of our flowers to bloom in the earliest days of the year according to our chronology.

Their coming is a little irregular, depending much upon the weather, not only of their season, but also to some degree upon that of the months which have just passed away. Some years they are a month or so late, but in others they favour us with their flowers a second time by coming again before December has gone.

Crocus Imperati.—Were one to be laid under the necessity of making a choice among the early-flowering Croci, it is probable that this fine species would be the first chosen. It is very hardy, although a native of Italy, and gives as little trouble as any Crocus we grow. It is beautiful also, whether closed, when its fawn-coloured segments are attractive; or open to the sun, when the rich purple of its flowers fill one with admiration. It is early, occasionally blooming with us in the North before New Year's Day, but usually in January, and further South, and in some parts of Ireland, before Christmas. There is a white variety, but this appears to be difficult to establish, and I have lost it several times. The species is rather variable in shade of colour, and it has been pointed out that there are two forms. One of these, and the prettier of the two, comes before the other, and is beautifully pencilled with black-purple on the outside. The later variety is almost self-coloured on the exterior of the outer segments, and is usually smaller. Crocus Imperati is cheap, and produces seed freely, which may be sown as soon as ripe. The seedlings do not flower for three or four years.

Crocus vitellinus.—This pretty and bright little Crocus usually comes rather earlier than C. Imperati, and gives a bright touch of gold to the spot in which it grows. The colour is a deep golden-yellow, and in the dark days of the year a good batch would be very acceptable. It is one of the species which shows its proper leaves with the flowers, a feature which, to some of us, appears to add to their beauty. The outside is sometimes feathered with bronze. The anthers are yellow or orange, and the stigmata scarlet or orange. It is common in Northern Palestine and Syria. It is quite hardy with the writer, and is a little Crocus worthy of wider cultivation.

Crocus Crewei.—The rare Crocus Crewei is closely related to C. biflorus, and it is doubtful if it would have been accorded specific rank but for its dark, almost black, anthers. It comes into bloom with me about the same time as C. vitellinus, and, although not bright like the latter in its colour, it is very pretty and refined. The whitish-buff outer segments are beautifully feathered with chocolate, and the white interior contrasts pleasingly with the deep chocolate of the anthers. This Crocus was first found by Mr. Elwes in Syria in 1874, but it has been sent from Asia Minor also. It has been figured in the *Botanical Magazine*, and fuller details regarding this and other Crocuses will be found in Mr. Maw's "Synopsis of the Genus Crocus," which appeared in the *Gardeners' Chronicle*, vol. xvi., p. 102 *et seq.*

Crocus ancyrensis.—Another bright little Crocus which comes soon after C. vitellinus is C. ancyrensis, the Angora Crocus; it is deeper in colour than C. vitellinus, and more nearly approaches a deep orange. The segments are unstriped, and a little clump of the grassy leaves and bright flowers of the Angora Crocus looks very pretty. It is said to be very plentiful in some parts of Asia Minor, but it is not nearly so commonly met with in cultivation as one would expect.

These are only a few of the considerable number of the plants of this charming genus, which present themselves to us when flowers are scarce in the garden, and when the smallest blossom is highly prized *S. Arnott, Carsethorn, by Dumfries, N.B.*

PLANT NOTES.

IPOMOPSIS ELEGANS VAR. (*Hort. Vilmorin*).

THIS pretty and useful annual affords a pleasing and attractive display when grown in groups in the flower-borders. It grows to a height of 3 feet, bearing long, more or less branching spikes of flowers, which are valuable for decorative purposes. The colour of the flowers varies, ranging from pink and salmon to creamy-white. Plants raised from seed sown in gentle heat in spring, and planted out in the month of May will flower during September and October. If desired to have the plant in flower at an earlier period, seed should be sown in August or September, and wintered in a greenhouse. Ipomopsis elegans succeeds in a warm and dryish soil. Last year I grew it well on a light gravelly soil, in spite of the drought. English seedsmen do not appear to catalogue the plant, or perhaps they include it under a different name. *James Baxter, Boldre Grange Gardens, Lymington.*

OXALIS CERNUA.

This pretty species of Wood Sorrel is a useful subject for filling up and brightening small recesses in the flower-garden or on the shady side of rockeries. It produces decumbent, fleshy stems, a foot or more long, bearing trifoliate, light green leaves, and bright yellow flowers, a little larger than those of O. floribunda, in great profusion. The plant produces small brown tubers in the axils of the leaves, which may be collected, stored in dry sand, and planted out in April of the following year, choosing a damp situation for them ; the stems are of annual duration. Although introduced about the middle of the last century, it does not appear to have been cultivated to any extent. A few years ago tubers of this plant were imported under the misnomer "Bermuda Buttercups." Although no mention is made of this species in the early floras of the Canary Isles, it now covers large tracts of wild pasturage in Grand Canary, it having been introduced there from the Cape ; and so prolific is the plant, that quite 90 per cent. of the fodder cut in winter in the damp districts consists of this species of Oxalis. It has not proved hardy in this country, 4° of frost being the limit the tubers have withstood unharmed. It may prove hardy in the extreme south-west, but is likely to become a pest wherever it is established. *G. B. M.*

MONTANOA HERACLEIFOLIA.

There are a number of ornamental plants very effective in groups, or solitary on the lawn, but which, unfortunately, have fallen more or less into neglect. To these belongs the above-named plant, a native of Mexico, which during the course of the summer reaches a height of 6 to 9 feet. This rapid growth, and the handsome and remarkable foliage, renders the plant, and similarly M. bipinnatifida, very valuable in the flower-garden. The leaves have a length of 27 inches, with a width of 18 inches. They are opposite, stalked, and double-feathered ; rough, hairy, and serrated at the edges. The plant is raised by means of cuttings, which are taken in the winter from plants started in heat. Cuttings of young wood root readily. "*Wiener Illustrirte Garten Zeitung*," *for January*.

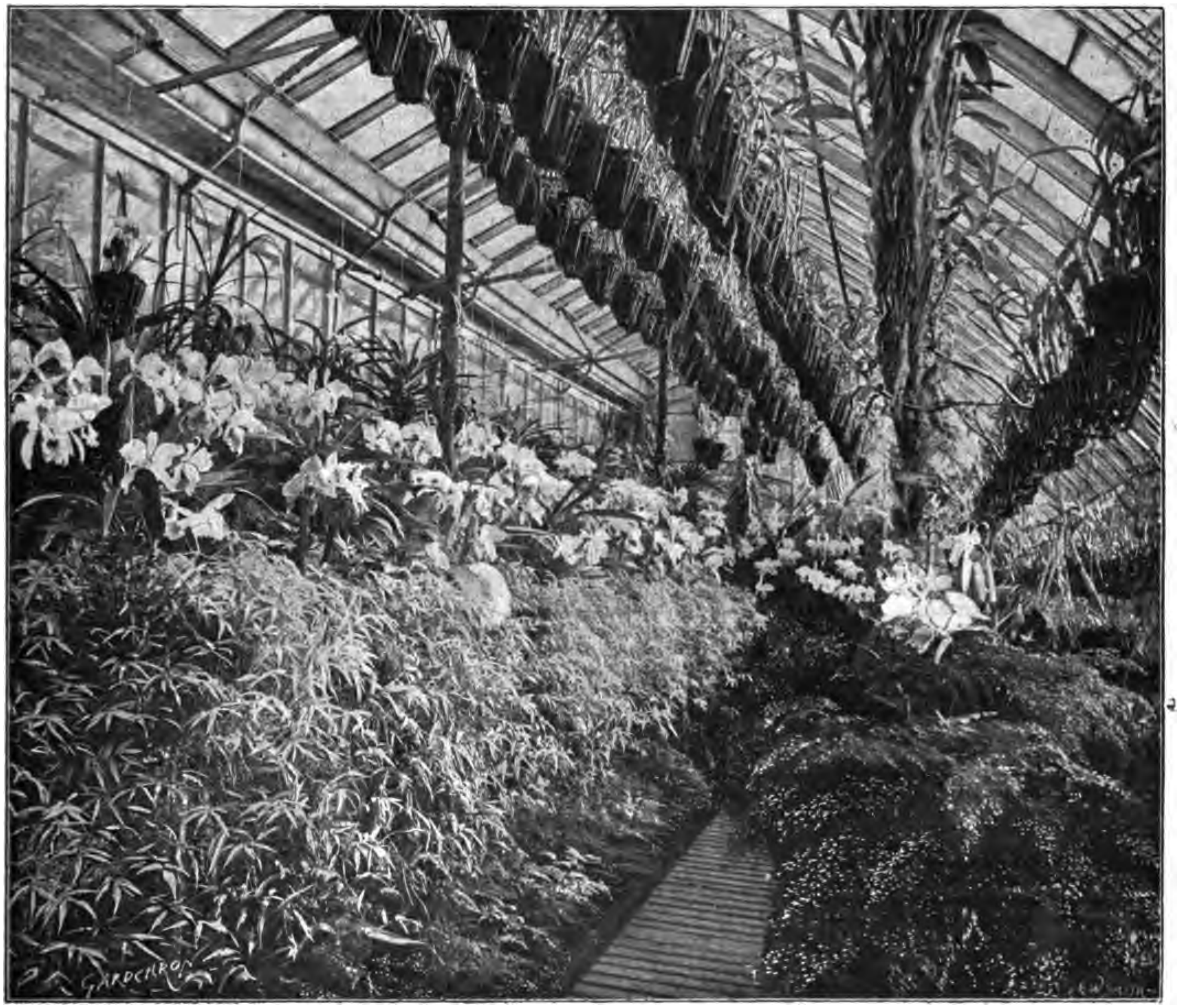

Fig. 41.—View in the Cattleya-house of Capt. G. W. Law-Schofield.

ORCHID-HOUSE AT NEW HALL HEY.

In fig. 41, we have reproduced a photograph, taken in November last, showing the interior of the Cattleya-house of Captain Law-Schofield, at Rawtenstall, near Manchester. At that date the house presented a wonderful show of flower, the principal species represented being C. labiata, C. Gaskelliana, C. × Mantini, and other Cattleyas ; also many Lælias, of which L. pumila was very fine. Among Cypripediums, the hybrids C. × Schofieldianum, C. × Lawrebel, and C. × Arthurianum were conspicuous. The collection at New Hall Hey is a very fine one, and an adjoining house was almost as gay with blooms as that photographed. At the present time the Dendrobiums are in flower, and the Orchids generally, under the cultural care of Mr. Shill, are very satisfactory.

TREES AND SHRUBS.

ELÆAGNUS.

Among the most useful of hardy evergreen shrubs are the species of Elæagnus, and the close allied genera Hippophae and Shepherdia. Not only are they hardy, but they will grow in almost any soil, and do not suffer so much from the smoke of great cities as many other plants do.

The Hippophae, or sea Buck-thorn, is common on some parts of the Kentish coast, and sometimes forms large copses, as along the Isar near Munich, and in the Rhone valley. Its silvery leaves, relieved by brown scales, are very effective, and the golden berries are very showy. Planters should remember that the plant is diœcious, that is, that the male flowers are on one plant, the female on another. We often get complaints from purchasers that their shrubs do not produce berries ; no doubt because they have purchased male plants only. As it is very difficult, if not impossible, to distinguish the male from the female plant when not in flower, nurserymen should carefully mark their plants when they have the opportunity, and thus be enabled to supply their customers with the two sexes. We do not know if anyone has ever tried to graft the male upon the female bush, but we strongly advise that the experiment should be made.

The cultivated forms of Elæagnus are mostly of Japanese origin, and those "curiosity-loving people" have sought and perpetuated many varieties which have found their way into our nurseries. Mr. Scapelhorn sends us sprays of some of the more showy varieties, from which we select the following for notice—

ELÆAGNUS REFLEXA AUREO-VARIEGATA.

A straggling shrub with axillary spines of about the same length as the leaf-stalk. The leaf-blades are about 4 inches long by 2 inches broad, oblong, pointed at both ends, wavy, coriaceous, dark green at the margins, disc heavily blotched with golden variegation, under-surface concolorous, cream-coloured, densely beset with stellate scales; nerves brown.

E. REFLEXA ARGENTEO-VARIEGATA.

Similar to the preceding in habit, but the leaves are smaller, more wavy, and the creamy-white variegation is confined to the margin, the disc being of a deep green colour.

E. HORTENSIS VAR. ANGUSTIFOLIA.

A spiny shrub, thickly clothed with silvery scales. The shortly-stalked leaves are about 1½ inch long by ½ inch in width, linear-oblong, rounded at the base, and slightly so at the tip, greenish above, silvery beneath.

One of the North American species of Elæagnus is noticeable for its fruit, which is borne on long, slender, pendulous stalks, and is eaten by those who like it. A figure of this species was given in our columns in 1873, p. 1014.

THE WEEK'S WORK.

FORESTRY.

By A. C. Forbes.

The Home Nursery.—There are few estates on which planting is more or less an annual affair which do not possess a home-nursery in some form or another. It may either take the shape of a carefully-laid-out piece of ground, provided with walks, shelter-hedges, and sheds for seeds, tools, &c., or it may simply be some out-of-the-way corner fenced round with wire-netting, and used as a depôt during the planting and subsequent filling-up of a large plantation. From the forester's point of view the former type is the most desirable, not only on account of its general utility, but also as a sort of experimental station in raising and propagating trees and shrubs, which is always interesting work to a culturist of any kind. No doubt many public nurserymen consider home-nurseries more or less detrimental to their own interests; but unless they are worked upon a large scale, we believe that they enter very little, if at all, into competition with the nursery trade generally, more especially where economy is studied; for the home nursery is not always an economic concern directly, if indirectly. It is only under very favourable circumstances that the work of sowing, bedding-out, cleaning, &c., can be done anything like so cheaply on a private estate as it is done in a public nursery; nor can that amount of attention be given to the work when it is only one of many jobs which make up the duties of an estate forester's staff. In nine cases out of ten it will be found that the bulk of the plants used in making an ordinary plantation can be purchased from a public nursery at less cost than they could be raised from seed or even seedlings in a home nursery. It is, of course, not an easy matter to estimate the cost per thousand of raising any particular kind of tree in a home nursery, and we doubt very much if the public nurseryman is in a much better position to do so either, except in a general way. All that can be done is to put the rent of the land, labour, and general expenses against the value of the stock, based upon the current market prices of the different species and sizes grown. But it is impossible to arrive at the exact percentage of profit or loss for which the stock of each species is responsible, although in a general way it will be found that those species most in demand, and on which there is the largest turnover, are the most profitable to the nurseryman who grows them on a large scale, and the least profitable to him who grows on a small scale, because the former is able to make a much larger profit at the same rate per thousand than can the latter, the cost of producing the larger number being relatively lower. The home nursery cannot, therefore, fairly compete with a public nursery, which grows a hundred plants, perhaps, to every one that is raised in the former; but over and above the fact that a business on a large scale can be carried on more economically than one on a small scale, the home nursery is usually greatly handicapped in the way of labour. Anyone acquainted with the routine of a large forest-tree nursery is familiar with the cheap and rapid method adopted in bedding out seedlings and small transplants. Chiefly done by piece-work, at so much per line or thousand, a couple of men with women or boys soon make short work of putting out forty or fifty thousand seedlings. Put a couple of ordinary estate labourers at the same work, and pay them by the day, and the number they plant in an eight-hour day can usually be counted without any great strain upon the eyes. Speaking from painful experience, we invariably find that the amount of work done in the home nursery in this direction varies inversely with the number of men employed. If a man is working alone, not more than the regulation 50 per cent. of time is wasted; but if two are together, the processes of levelling the soil, setting out the line, and opening the trench give rise to so much discussion and argument, that the extra man is rather a loss than a gain. The fact is, the average labourer rarely works hard at easy work, or work which requires dexterity and nimbleness rather than strength; and it has often struck us that the home-nursery on an estate is somehow or other associated with that class of work which can be done at any time, and which fills the gaps that occur between busy seasons. For the above reasons, we are not greatly in favour of the home-nursery growing large quantities of ordinary forest-trees, unless particular advantages or particular reasons exist for growing a particular species, large numbers of which are used on the estate. Carried out on a large scale, and by men who take an interest in and have become accustomed to the work, it may prove more profitable, as we shall hereafter endeavour to show.

(To be continued.)

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester

Early-flowering Shrubs.—The mild winter has been favourable for these on walls and in the open. One of the earliest of these is Jasminum nudiflorum, which, planted on walls having different aspects has kept up a continuous display of yellow flowers. A plant of Chimonanthus fragrans, planted against a wall with a west aspect, produces here, annually, an abundance of flowers, cream-coloured and purple, which are fragrant; Ligustrum (Lonicera ?) fragrantissimum, grown as a shrub or trained up the stem of a tree, has delicate white pendent flowers; Azara microphylla is quite hardy here, forming bushes 8 feet high and 6 feet in diameter, the inconspicuous flowers attracting attention by their sweet Vanilla-like perfume; Osmanthus ilicifolius, resembling a small Holly in growth, produces small white flowers; Andromeda floribunda is a beautiful shrub, with pretty white campanulate flowers, and requires to be grown in a peaty soil. Hamamelis arborea is a tree of low growth, and the branches are now covered with beautiful, though small, bright yellow blossoms, with deep crimson calyces; Daphne laureola has clusters of flowers of a greenish-yellow colour, in the axils of the upper leaves; D. Mezereum, with its deep red or white flowers, is effective when planted on elevated positions in the rockery; Garrya elliptica, with its long, pendulous catkins of yellowish flowers and stiff grey-green leaves, is a handsome object against a wall or as a bush or a hedge; Laurustinus stricta (fragrans) is good grown as a free standing shrub, or a plant against a wall, opening its white-waxy flowers at this season. This variety is more hardy than the common form, and the leaves are more leathery. All of these shrubs may now be planted, and the most of them will succeed on good ordinary garden soil.

Auriculas (Alpine).—Plants that were raised from seed sown last July, pricked off in boxes, and wintered in cold frames are, under the influence of the mild weather, starting into growth, and they should be placed outside, and gradually hardened off, preparatory to being planted out. See that old-established plants are made firm in the ground, and any that may be showing signs of a decaying stem, and are worth perpetuating, should have the suckers taken off and inserted in sandy soil, under a handlight, to root, which they will soon do.

Bedding Plants.—Sow seeds of such subtropical plants as Melianthus major, Albizzia lophantha (Acacia lophantha), Eucalyptus Globulus, Nicotianas colossea, atropurpurea, grandiflora, macrophylla, gigantea, and Wigandioides; Solanums robustum and Warscewiczii; Grevillea robusta, Abutilons, &c. Sow also, in mild warmth, seed of Verbena hybrida. Verbena seed is sold in packets of distinct colours, and it almost invariably comes true to tint. Plants from seed are more robust in growth, and produce more flowers than when grown from cuttings. The seed pots should be filled with light sandy soil made firm and level, and the seeds slightly covered with soil, and afforded plenty of water. Place the seed-pots in a temperature of 70°. Cuttings of Ageratum, Coleus Verschaffelti, Iresine, Heliotropes, Fuchsias, Agathæa cœlestis, and yellow and white-flowered Marguerites, should now be taken, cutting them with a sharp knife just below a joint, and inserting them in small pots filled with a mixture of sandy-loam, leaf-mould, and sand, plunging the pots to the rim in cocoa-nut fibre-refuse or fine coal-ashes, over a bottom heat of 75°, and keep close and shaded till roots form.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Peas.—As soon as the soil has got into a proper workable condition, a sowing of such second early Peas as Criterion, Dr. Maclean, Stratagem, Telephone, and others, may be made thinly, in shallow, flat drills, drawn at 6 to 8 feet apart, according to the height the variety attains. Early Potatoes may be planted between, or seed of Turnips, Lettuce, or that of any other quick-growing dwarf plants sown. There is nothing to be gained by very close cropping: afford, therefore, plenty of space to allow of each plant growing sturdily and robustly.

Broad Beans.—In the present month make a full sowing of Broad Beans, choosing the larger-podded varieties, such as Bunyard's and Veitch's Longpods, which are excellent croppers, and if Beans are liked at the best table sow seeds of Green Windsor, which has the best flavour of any. Sowings of Beans should be made on well-manured land, in either double or single rows, fully 3 feet apart, each seed-bean being put into the drills or dibbled at 6 inches apart. Mice of various species are fond of Beans, and must be trapped or hindered in some way from devouring the seed-beans. Slugs are troublesome sometimes, but a dusting of the tops with lime and soot will save the plants from their ravages. The Peas suffer from a too decided preference of the hedge-sparrow, and if no Pea-guards are available let lines of cotton be drawn tightly above the rows, at about 3 inches above the plants. As the latter grow the supporting sticks should be lifted further out of the ground, so as to keep the line of plants clear of the threads.

Shallots and Garlic.—The bulbs should be planted as soon as the land is dry enough, pressing in good-sized bulbs of the first 2 inches deep in the soil; but planting the cloves of the second, not the entire bulb, and in doing this let the top just appear above the soil. If the land be heavy and retentive, the bulbs should not be pressed in so deeply, but only deep enough to keep them from being lifted out by the action of frost, and the upward pressure of the roots. One foot of space allowed is deemed sufficient between the rows, and 8 inches from bulb to bulb; the ground for this crop should be in good heart, and be made moderately firm.

The bulbs on light land and in southern shires may be left in the ground for two years.

Herbs.—If the Thyme plants are few, seed may be sown in pans, and hastened in growth under glass, but not in a high temperature. Keep the plants sturdy, and plant them out in suitable weather, and after due hardening off. The herb border should be overhauled, and deficiencies therein made good. Keep the whole of those that are in daily use in a quarter most convenient to get at. Tarragon, Mint, &c., may be lifted, and the roots replanted in a fresh spot. Mint quickly grows into fine clumps, as also Tarragon, when young pieces are pulled up and dibbled in at 1 foot apart when the growth is under 6 inches in height.

Sweet Basil and pot *Marjoram* should be sown in pans, and placed in heat to be used in a tender state; and later a large sowing should be made for planting-out purposes. Basil being a native of the tropics requires a warm house, and to be carefully afforded water, and no crowding permitted, or wholesale damping-off will occur.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Tecoma Smithi is a very serviceable winter-flowering plant, producing trusses of orange-yellow coloured, tubular-shaped flowers at the beginning of the winter, and remaining a considerable time in bloom. Old plants which have been resting after flowering may be cut back and placed in an intermediate temperature, where they will soon make new growth, and if it is intended to increase the stock, shoots may be taken off when from 3 to 4 inches in length, and either inserted singly in thumb-pots, or eight together in a 48-sized pot, and plunged in a hot-bed or propagating-frame. When the cuttings are sufficiently rooted, pot them into small pots, affording a compost consisting of two parts loam, one part leaf-soil, and a little sand; when the roots appear at the sides of the pots, the plants may be transferred to a house where the temperature is about 55°, and when well-rooted, they may be placed in 5-inch pots, adding then a little rotten-manure to the soil. When well established in these pots, air freely, and finally stand them out-of-doors when danger of frost is past. When old plants which have been cut back, have made a couple of inches of new growth, the balls may be reduced considerably, and the plants potted into as small pots as possible, and when new roots have been made, a larger pot should be afforded.

Bouvardias which have been rested, should now be cut-back, if that has not already been done, and the plants given an intermediate temperature. When they have made an inch of new growth, turn them out of the pots, and remove the greater part of the old soil with a pointed stick, placing them in pots only sufficiently large to admit of an inch of soil being placed around the reduced balls. The easiest method of propagation is by means of root-cuttings, and to provide these, the requisite number of strong old plants should be selected. Shake the soil from the roots, and cut the strongest of these into pieces about an inch and a half in length. Fill a pan, or pots, to within an inch and a half of the rim, with sandy soil; upon this lay the root-cuttings, and cover them with half an inch of soil. Afford a watering, and place them under a bell-glass in the stove, or plunge in a hot-bed. The cuttings will soon make roots, and throw up shoots, which should be stopped above the first pair of leaves; and shortly afterwards pot them into thumbs, using a compost consisting of two parts loam and one part leaf-soil, with plenty of sand added. Afford them a moist, warm atmosphere for a time, and stop the shoots frequently, so as to produce a bushy habit, shifting them into larger pots when well rooted, and finally potting them into 5-inch or 6-inch pots, according to the strength of the plants. Towards the end of the spring they may be transferred to a cold pit, gradually increasing the amount of ventilation, and continuing the stopping of the shoots until July, by which time the plants should be well furnished. Where large quantities of cut flowers are required, old plants may be started as recommended above, and grown on until towards the end of the spring, when they may be planted out in prepared soil in a pit provided with a hot-water pipe, into which heat may be turned when necessary.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Selenipediums and their hybrids.—The stove species, S. longifolium, Roezli, caricinum, Boissierianum, Lindleyanum, and Sargentianum may now be afforded fresh materials, viz., good turfy peat and sphagnum-moss, used in the proportion of two of the former to one of the latter. The rhizomes of the first two species have usually an upward trend, and when re-potting is not required, the new material should be packed well up to the base, so that the roots may enter it as soon as they emerge from the rhizome. Overgrown specimens should be divided into pieces of a suitable size rather than be re-planted intact in a bigger pot. Pots without perforations in the sides, except at the very bottom, should be used for this section, as they need large and frequent applications of water during the greater portion of the year, and also at this present season, that a large mass of drainage is necessary. Selenipedium caricinum, one of the parents of S. Dominianum, is like that hybrid, rather prone to damp off if water be allowed to collect in the growths, hence, care in watering becomes a necessity, more especially in the winter, when evaporation is slow. S. Schlimi, and S. caudatum, and the hybrids with an infusion of their strain, grow best in an intermediate temperature, and, like the preceding species, they should have especial care when affording water. The first-named should be undisturbed so long as it has sufficient root-room, and the drainage is in good order, affording the plants an annual top-dressing, and removing as much of the old materials as may be picked from among the roots without damaging them. A larger proportion of sphagnum-moss should be used for this species, and with an added quantity of fine crocks. When repotting becomes necessary, let the base stand well above the rim of the pot, which in this instance should consist of one of moderate depth, or a shallowish pan, having perforations at the sides. S. caudatum should not be disturbed at this date if the flower-spikes are showing, but the surface may be freshened up with the following ingredients, peat two parts, fibrous loam one part, and sphagnum-moss one part, sprinkling in some finely-broken crocks as the operation proceeds. When repotting it, more than half fill the pots with drainage, and keep the plant below the rim. Most of these are prone to attacks from insects, and means must be adopted to keep them clean and free from injury from this cause.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Fruiting Pines.—During mild weather it is practicable to maintain a very uniform temperature, but if frost or cold searching winds prevail, it will be prudent to allow the temperature to decrease by a few degrees rather than use excessive firing to maintain a given temperature. From 70° to 75° by night, and a rise of 10° by day will be sufficient, allowing slightly higher or lower figures according to external conditions. By the increased temperatures and brighter sunshine, more frequent damping of the floors and other surfaces will be needed, and on bright days light over-head syringing may be given early in the day. Afford root-waterings as often as may be needed, and liquid manures or guano dissolved at the rate of an ounce to the gallon will be useful. Ventilate on every fitting occasion, if only for a brief period. Any plants that are throwing fruits, should be afforded a steady bottom-heat of 85°. For this purpose, tree leaves or tanner's bark may be used. The latter, if fresh, will need to be watched that excessive heat may be anticipated and prevented. A loosening of the pots will often be found sufficient to prevent injury to the roots, should the material become too hot. If it is impossible to obtain the required quantity of fermenting-materials to replenish the whole bed, the warmer end may be given this alteration, and a selection of the most forward plants be plunged therein, so as to accelerate their ripening.

Successional Plants.—Make preparations for the shifting of these into larger pots by removing under cover, and preferably in a warm place, the requisite amount of turfy-loam. This may be broken up, and an addition be made to it of bone-meal in the proportion of a 6-inch potful to each barrow-load of soil. If the turf breaks too finely, it is better to pass it through a sieve so as to remove the finer portions. To loam of a heavy nature, broken charcoal, lime-rubble, or coarse sand may be added, which will render it more easy of penetration by the roots, and less likely to retain too much water. The pots, whether for final potting or not, should be perfectly clean and dry at the time the work of potting is commenced. The exact time of potting may be decided by individual convenience, but the month of March is generally conceded to be a suitable one. This rule, however is subject to modification according to the condition of the plants themselves, and the provision made for plunging them. Before the final stage of the work of repotting and plunging is reached, the structures themselves should be put in order, by well washing the roof, and lime-washing the walls.

Suckers that are well rooted may be shifted at any time into pots of larger size, and any that are not satisfactory at the roots may be shaken out of the stale soil, and replaced in the same-sized pots in fresh compost. To poorly-rooted or weakly suckers, a little leaf-mould mixed in the potting-soil is helpful. Suckers should be removed from fruiting-plants as fast as they arrive at a suitable size. Place them in pots of small size, and afford a steady bottom-heat of 75°, and very little water until roots form freely.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener, Dropmore, Maidenhead.

Peach and Nectarine-trees.—The pruning and training of these trees should not be deferred much longer, as the mild weather now likely to prevail will hasten the flowering period. Assuming that the trees were loosened from the walls some time ago, in beginning the training and pruning the main branches should first be fastened in their proper position, that is radially, and then the smaller branches and shoots should be examined, and those not required removed. If the trees received attention after the fruits were gathered, and the shoots which had borne fruit were removed, the pruning to be carried out at this date will be a very small matter. The aim of the cultivator should be the retention of the finest bearing wood, therefore old growths as far as possible, having regard to covering the space, should be removed. Shoots not required to extend the tree, and all short growths growing at right angles with the wall, may be closely spurred, the resulting shoots being closely pinched during the growing season. The leading shoots should be, in all cases, laid in at their full length, it not being desirable to shorten these, for the best buds are always found towards the points, and the growth from this one always starts away in a more direct line than if shortening is practised. The crowding-in of young shoots should be resolutely avoided, the least space between them being 3 inches, and and 5 to 6 would be better. The heavy cropping of a young tree often leads to weakly growth and small fruits the next year, and in such case severer pruning and the shortening back of young weakly growths are necessary operations. Sometimes these weak shoots may be cut back almost close to the base, and long ones, with but few fruit-buds, removed altogether. If the border is become exhausted, it should be top-dressed with new loam and bone-meal, previously removing some of the surface-soil. Assuming that the trees have already been syringed with a mixture of soda and potash as previously advised, no further dressing of the branches will be required; but if they have not been so treated, let the trees be syringed with a mixture of petroleum and soap-suds, in the proportion of a wineglassful of the former to 3 gallons of the latter, keeping it well stirred during the operation. Before the training is begun, nail-holes and crevices should, if possible, be filled up with cement or mortar, the more readily to keep insect pests in check. I prefer the use of nails and shreds to that of a wired wall for out-door Peaches, but whichever is employed, the shoots require equal care. Where the former method is in use, the shreds should be cut small and neat for the young shoots, and care taken in nailing that the nails does not touch the shoots, otherwise, in swelling later, the presence of it against the rind will be sure to cause gumming, and the loss of the shoot. Equal care is required when tying to wires, and whatever material is used, it should be passed twice round the wire before tying, which will the better secure the shoot, and prevent its pressing directly on the wire. If the walls have been recently wired with new galvanised wire, it will be advisable to afford the wire a coat of oil-paint or thick lime-wash.

EDITORIAL NOTICES.

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY,	Feb. 23	Annual General Meeting of the Kew Guild, in the Garden Library, at 8 P.M.

SALES.

MONDAY,	Feb. 20	Roses, Gloxinias, Japanese and English-grown Lilies, &c., at Protheroe & Morris' Rooms.
TUESDAY,	Feb. 21	Hardy Perennials, Asters, Carnations, Tigridias, &c., at Protheroe & Morris' Rooms. Sale of the "Willow Brook" Collection of Established Orchids, by order of D. A. Salamon, Esq., at Protheroe & Morris' Rooms.
WEDNESDAY,	Feb. 22	Japanese Lilies, Palm Seeds, Tuberoses, Continental Plants, &c., at Protheroe & Morris' Rooms.
THURSDAY,	Feb. 23	Hardy Border Plants and Bulbs, in variety, at Protheroe & Morris' Rooms.
FRIDAY,	Feb. 24	Roses, Carnations, Hardy Perennials, &c., at Protheroe & Morris' Rooms. Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period February 5–11, 1899. Height above sea-level 24 feet.

1899. February.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Temperature of the Air. At 9 A.M. Wet Bulb.	Temperature of the Air. Day. Highest.	Temperature of the Air. Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 5	S.E.	36·5	35·8	39·5	30·5	0·02	36·0	40·0	44·5	30·0
Mon. 6	S.E.	39·5	36·8	45·8	35·6	0·41	37·0	39·7	44·3	30·5
Tues. 7	S.S.W.	46·5	45·8	50·2	36·0	0·13	38·0	39·8	44·8	31·8
Wed. 8	S.W.	50·6	48·7	53·8	46·3	0·24	41·8	40·8	43·8	43·5
Thu. 9	W.S.W.	50·5	47·8	58·6	47·3	0·18	43·0	42·2	43·8	43·0
Fri. 10	S.S.W.	57·9	50·0	64·4	50·3	...	45·2	43·3	44·1	47·8
Sat. 11	S.S.W.	52·0	47·9	54·5	50·2	0·09	46·3	44·3	44·4	43·6
Means...	...	47·2	42·9	51·9	40·4	Tot. 1·07	41·1	42·0	44·3	38·9

Remarks.—Rain fell on six days, Monday's being very cold, and mixed with snow and sleet; wind changing from south-east to south-west. On Friday the sun was very warm, the thermometer registering 64° in the shade.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—39°.

Actual Temperatures:—

London.—*February* 15 (12 P.M.): Max., 52°; Min., 45°.

Provinces.—*February* 15 (12 P.M.): Max., 48°, Bath; Min., 42°, Cape Clear.

The Royal Horticultural Society. The Report of the Society published in this journal on Jan. 28, p. 58, and the remarks made by Sir Trevor Lawrence, Bart., its President, at the annual general meeting held on Tuesday last, should prove of an exceedingly gratifying nature to the Fellows and friends of the Society in particular, and to horticulturists all over the country.

The meeting on Tuesday was most amicable, there being an entire absence of contentious or disputatious features, a pleasing and remarkable fact to be chronicled when account is taken of the proceedings at some general meetings in former years. We are happy in the knowledge that the Society has been skilfully piloted into a secure position, that it is in receipt of a much larger income than formerly, and that this income is being strenuously devoted to the interests of gardeners, and of gardening in its widest sense.

At a time, not so long ago, there were grave fears that the financial straits of the Society would have necessitated the curtailing or renunciation of the gardens at Chiswick. Now, however, it is pointed out that these gardens are too small for the increasing needs of the Society. In any case, the soil of the garden is greatly exhausted, so far as experimental purposes are concerned; it is, moreover, too shallow, and of so gravelly a nature, that everything suffers in seasons of drought. There are, however, twenty unexpired years of the lease, during which time the place must be retained, and the garden structures be kept in a decent state of repair. This occupancy of Chiswick for a long term of years to come need not, however, stand in the way of the Society acquiring more and better land, not far distant, for trial purposes.

From Chiswick to Westminster is but a step, and we find from the President's remarks, as we were ourselves cognisant, that the meetings, or exhibitions, as they may now be called, at the Drill Hall, in James Street, have grown, and continue to grow, in popularity with the right sort of people—those who are fond of a garden and a greenhouse, and who find their greatest pleasure and solace therein. The exhibits grow in variety, and consequently in interest, owing doubtless to the appearance of the amateur and professional gardener exhibitor in greater numbers, whilst those from the commercial gardener or nurseryman do not diminish in number or extent, although we think the latter class should be somewhat limited in the area occupied, in justice to the claims of other exhibitors.

The recent re-arrangement of the Lindley Library, and the publication of the catalogue of books and publications therein contained, received notice from the President, who laid emphasis on the feelings of gratitude evinced by the Fellows of the Society for the exertions of Dr. Maxwell T. Masters and his assistant, Mr. Hutchinson, in connection with the re-arrangement of the library and the formation of the catalogue. The library, he said, was constantly increasing, and the time had come for the appointment of a librarian, who would keep it in good order; but with regard to this and cognate matters we must refer our readers to the report itself on p. 109.

In regard to medals awarded for meritorious exhibits, it was, he said, notorious that some of these were not, now, actually given, owing to the great cost the doing of this would entail; and it is proposed to have a smaller gold medal struck, and give this absolutely to the fortunate exhibitors.

In conclusion, it may be said that the annual general meeting afforded an example of unanimity, friendliness, and general accord on the part of all present, boding well for the future of the Society.

Injury to Hyde Park and Kensington Gardens. We are informed by a correspondent resident in the neighbourhood of Hyde Park that it is proposed to cut a trench 6 feet deep by 5 feet wide through the loamy soil of Kensington Gardens and Hyde Park, from end to end, in which to lay water-mains. Our experience of cutting deep trenches through land on which trees and shrubs are growing, teaches us that disastrous consequences are certain to ensue; and in view of irreparable losses in trees, and the extreme and increasing difficulty of establishing trees and shrubs in London, immediate steps ought to be taken to prevent the perpetration of this act of Vandalism. It is quite unnecessary to carry the trench through the Park and Gardens, as for a trifling extra outlay the pipes could be laid in the high road or under the pavement. There may exist the belief that by laying them in the park the local rates will not be levied. Besides the certain injury that will occur to vegetation, there will be the nuisance from the unsightly works in progress, and practically a year's enjoyment of the park and gardens will be lost to the public. The inhabitants of the adjacent residential districts intend to memorialise the Right Hon. A. Akers Douglas, M.P., First Commissioner of Works, representing to him the injurious effects of the scheme of laying down a line of mains through the entire length of the northern side of Kensington Gardens and Hyde Park, and asking him to place his veto upon it.

Cyphomandra betacea. — Our illustration (fig. 42, on p. 105) shows a fine plant of the Tree Tomato, bearing a plentiful crop of fruits, in the temperate-house, Royal Gardens, Kew. The tree blooms at Kew during July and August, and the photograph from which our present illustration has been prepared was taken in October last. In the issue of the *Gardeners' Chronicle* for March 10, 1887, p. 383, was published a figure representing part of a shoot of this species, bearing leaves and a bunch of three fruits, together with a letter from Dr. Morris describing the plant as grown in Jamaica and other West Indian colonies. The plant is a native of Peru, where it is known by the name of Tomato de la Paz. The fruit when ripe is of a rich orange colour, and measures about 2 to 2½ inches long, and 2 inches in diameter. They may be used exactly the same as the fruits of the ordinary Tomato, and a preserve is also obtained from them. The plant is not hardy in England, but as our figure fully demonstrates, it succeeds splendidly in a house that affords little more than protection from frost. Dr. Morris says that Cyphomandra betacea flourishes best in the hilly districts of the tropics, with a mean annual temperature of 65° Fahr.

The Gardeners' Royal Benevolent Institution.—The proprietors of the *Journal of Horticulture, per* R. Milligan Hogg, Esq., have given a donation of £50 towards the sum required to complete the Victorian Era Fund. Mr. Alex. Dean has also given £5.

The Surveyors' Institution. — The next ordinary general meeting will be held on Monday, February 20, when a paper will be read by Mr. J. L. Crouch (professional associate), on "The Management and Valuation of Brickfields." The chair will be taken at 8 o'clock. It has been decided, on the invitation of the Somerset, Gloucester, and North Wilts provincial committee, to hold the next country meeting at Bristol, on April 26 and 27. The first day will be devoted to papers and discussions, with a dinner in the evening; the second day to excursions to various places of interest in Bristol and its neighbourhood. Full particulars will be issued a little later on. University degrees: members who are graduates of any of the recognised universities of the United Kingdom are requested to intimate the fact to the secretary of the Institution, in order that the same may be indicated in the next issue of the list of members.

Woodlice. — These sometimes troublesome insects can be poisoned by placing sliced Potatos puffed over with Paris Green or London Purple about the Mushroom-house, Melon-frames, and other garden structures; but let not their poisonous character be ignored, or terrible results might ensue.

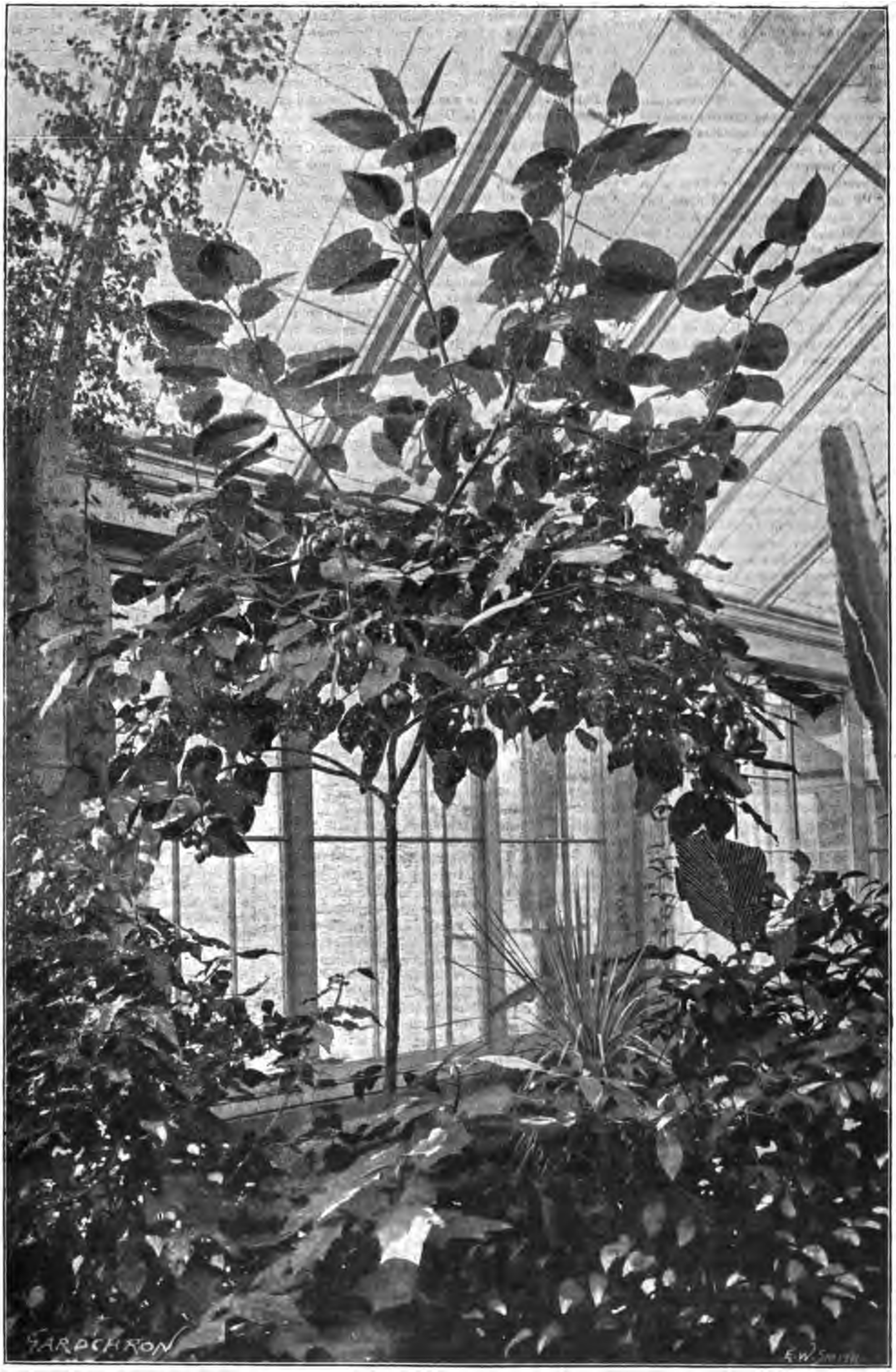

FIG. 42.—CYPHOMANDRA BETACEA IN THE TEMPERATE HOUSE, KEW. (SEE P. 104.)

TESTIMONIAL TO MR. F. LEE.—On the 13th inst. a testimonial was presented to Mr. F. LEE, who is retiring from the position of head gardener at Lynford Hall, Brandon, Norfolk, a position he has held for the past thirty years. The Lynford estate having recently been sold, and Mr. LEE being about to sever his long connection therewith, his very numerous friends in the district resolved to make this opportunity the occasion for an expression of the general respect in which Mr. LEE has been held. The presentation took the form of a silver-plated hot-water jug in the form of a watering-can, with an embossed shield upon one side engraved with a suitable inscription. A cheque for £47 accompanied the gift. From a report we have of the meeting at which the presentation was made, it is evident that the proceedings were most enthusiastic, and the expressions of respect to Mr. LEE extremely cordial.

OPEN SPACES.—Miss OCTAVIA HILL, on Wednesday, February 1, delivered an address on "Open Spaces," at the Portman Rooms. The lecturer stated that anyone who knew the life of a working man and his family in London knew how sorely a little garden was missed, and it became a necessity to provide as many small public gardens as possible near the homes of the people. These gardens, when scattered, had the advantage of opening breathing spaces for the blocks of buildings around. The usefulness of the parks and metropolitan commons was manifest, and in the management of larger open spaces on the outskirts of London a deeply-rooted desire would have to be met that portions of land should be preserved in a wild and natural state. If it was necessary to mark the boundary, let it be done with trees or hedges, not with iron fences. In 1888 a map was prepared showing the proportion of population to open spaces within a six and a four-mile radius of Charing Cross. In the western semi-circle there was one acre to every 682 of population, while on the eastern side there was only one acre to every 7,481. It was then realised that it would be hopeless to attempt to rectify this discrepancy within the four-mile radius, and attention was drawn to the importance of securing spaces within the six-mile limit. Since that time many acres had been added to the heritage of Londoners by private donors and local bodies. Still, the map showed that in the north-west quadrant there were 1,559 acres of open spaces; in the south-west 1,554; while in the north-east there were 988; and in the south-east 665. The discrepancy was large, and pointed to the necessity for some central body taking the initiative in selecting areas for purchase. Though every open space was helpful to the poor of London, the tendency was for spaces to be acquired in the richer part of the London area. Not much was now left within the six-mile radius, and, happily, improved means of locomotion had taken the population from the crowded centre. A critical time had arrived when it was incumbent upon all to unite in preserving the heritage of English citizens in commons and field-paths in all parts of the country. Indicating the various ways in which rights were filched from the public, Miss HILL pointed out the means of defence by the powers of parish, district, and county councils, and mentioned the principal agencies through which action might be taken. *Times.*

GHENT HORTICULTURAL AND BOTANICAL SOCIETY, ETC.—On the occasion of the monthly meeting of this Society in the Casino, Ghent, on Sunday, February 5, the jury awarded Certificates of Merit as follows:—To Cattleya Trianæi, shown by M. E. Coryn; to Adiantum Bessonianum, Kentia ornata, Phœnix canariensis gracilis, and Crinum Laurentio (Congo), shown by M. Ed. Pynaert; to Anthurium Andreanum hybridum, shown by M. C. Petrick; to Cattleya Trianæi splendens, shown by L. Desmet-Duvivier (unanimously); to Citrus sinensis aureo marginatis, shown by M. E. Lossy (unanimously); to Anthurium Scherzerianum hybrids, shown by M. Louis Desmet; to a collection of bunches of flowers of Cyclamen persicum var. Papilio (by acclamation), shown by M. Draps-Dom; to Kentia Buchenbergeri, shown by MM. Desmet Frères (by acclamation); to a work entitled, *Monographie sur les Cypripedium, Selenipedium, et Uropedium*, by M. F. Desbois. A Botanical Certificate was awarded to Dendrobium species shown by M. L. Desmet-Duvivier.

FRUIT FROM THE CAPE.—The *Dunvegan Castle* has brought from the Cape of Good Hope 809 boxes of Peaches, 22 boxes of Nectarines, 70 of Pears, and 68 of Plums; total, 969 boxes. The whole of the fruit arrived in excellent condition, and realised good prices. Peaches sold in shops in the City of London at 9*d.* and 10*d.* each; in the West End shops, at 1*s.* to 1*s.* 3*d.* each. There was a good demand for the Plums, and these were sold at 6*d.* to 9*d.* each. The Pears and Nectarines were in fair demand. An attempt to sell some of the best Peaches by public auction met with no success, and they were eventually sold privately in Covent Garden Market.

FLOWERS IN SEASON.—Chinese Primulas have been making a lovely show in the nurseries and private gardens since Christmas. Mr. W. Bull, New and Rare Plant Establishment, King's Road, Chelsea, has brought to our notice a number of blooms which represent fine strains in the single and semi-double-flowered sections. Of the semi-double varieties, Blushing Beauty, fulgens, and kermesina splendens, are very fine; and among the singles may be mentioned P. alba oculata lutea, marmorata kermesina, light purple, with traces of silver colour; Mavis, carmine, with wavy petals; Garnet, deep crimson flowers, of moderate size; and two varieties representing shades in the colour that among Primulas is generally termed blue. Cineraria flowers from the same establishment are types of a strain of brilliantly-flowered varieties of good form.

HEREFORDSHIRE ASSOCIATION OF FRUIT-GROWERS. — Mr. T. WHEELER MEATS, Hon. Secretary *pro tem.* of a society to be founded at Hereford under the above title, kindly furnishes particulars of the aims and objects of the same. It has long been felt that among the fruit-growers of Herefordshire there is a great need for the formation of some association which should watch their interests and provide them with an opportunity of meeting at regular intervals to discuss matters relative to fruit-growing and horticulture. The county is particularly adapted to fruit-growing, and yet the number of those who engage in it at the present time is exceedingly small in comparison with other counties; and it is thought that this method of uniting them will give a stimulus to fruit-growing, from a commercial point of view, which will be a benefit to the county. With a view to furthering this suggestion, a public meeting will be held at the Mitre Hotel, Hereford, on Wednesday, February 22, at 3 P.M., at which His Worship the Mayor of Hereford has kindly consented to preside. He will be supported by Sir JAMES RANKIN, Bart., M.P., Mr. C. W. RADCLIFFE COOKE, M.P., Mr. J. H. ARKWRIGHT, Mr. J. RILEY, Mr. H. C. BEDDOE, Mr. TICHBORNE HINCKES, and others.

PUBLICATIONS RECEIVED.—*The Agricultural Gazette of New South Wales*, December, 1898.—*Tijdschrift voor Tuinbouw.*—*Beiträge zur kenntnis der Afrikanischen Flora* (New Series), (published by Hans Schinz, Zurich).—*Orchid Review*, February, 1899. — *The Australian Agriculturist*, Sydney, January 9, 1899.—*Plantæ Europæ*, by Dr. K. Rrichter, fasc. ii., tome ii. (W. Engelmann, Leipzig).—*Banks and their Customers*, by Effingham Wilson (published by the same at 1*s.*, at the Royal Exchange, London, E.C.). A very useful little publication for the information of both large and small investors.—*Unique Journal Horticole Japonais*, communications to be addressed à la Société d'Horticulture du Japon, Shintomi-cho, Kyobashi, Tokyo.—*Le Potager d'un Curieux.* History, culture, and Uses, of 250 edible plants, by A. Paillieux and D. Bois, Librarie Agricole de la Maison Rustique, Paris.—*Dictionnaire Pratiqu- Horticulture et de Jardinage.*—*The Silva of North America*, by Chas. Sprague Sargent, vol. xii. (Houghton, Mifflin & Co., the Riverside Press, Cambridge, Mass., U.S.A.)

HOME CORRESPONDENCE.

LARGER EXHIBITS.—I think objections might be taken by others who are not actual exhibitors to the increased number constituting a dish of vegetables and fruits proposed by "A. J. L.," and his arguments show a decided absence of practical knowledge in the matter. The extension proposed by your correspondent, if carried out generally, would involve serious additional outlay in providing space in tents, &c., and staging; and many societies I know full well could tell "A. J. L." that those items of expense are already a sufficiently heavy burden on their resources. Even under existing conditions, those responsible for the arrangement of exhibits find that all available space is fully taxed. Where this is the state of matters, what wisdom is there in making further difficulties by proposing dishes where plates have previously filled the benches satisfactorily? and then, moreover, to suggest higher prizes. Your correspondent probably bolsters himself in the belief that some among the far-seeing members of the horticultural world would agree with him; but if a census of opinion were obtained from such a large body as that to which "A. J. L.'s" suggestion appeals, I am sure he would find himself among a small minority. I agree that visitors and patrons should be duly remembered, but an enhanced interest is not likely to accrue in the direction thus advanced, and surely those who contribute to the show's wealth and attractiveness are also deserving of consideration. Has not "A. J. L." seen the splendid and uniform effects in the arrangement of the Royal Horticultural Society's Annual Show of fruit at the Crystal Palace? and can he say that his proposal, if carried out, would lend additional attractiveness to that. I for one do not believe that it would, but, on the contrary, lead to much loss in effect, to say nothing of the larger amount of labour required, lower standard of quality, and fewer exhibitors. In short, the suggestion made has nothing to recommend it. *W. S.*

TREES IN SMALL GARDENS.—The case reported by you from South Australia at p. 26 is, indeed, an interesting one, and concerns the small gardens of tens of thousands of persons in this country. In how many cases have not tall-growing trees and shrubs been planted at the edges of suburban gardens, probably not more than 20 feet wide, without a thought being given to the ultimate result. In a few years, however, when these trees have reached to a height of 20 feet, the branches extending half-way over adjoining gardens, and the roots ramifying many feet from home, literally exhaust not only the owner of the trees own ground, but that of his neighbour: great harm is done, a great nuisance is created, and not less, much ill-feeling is engendered. But there is also the grave evil that such trees shut out from other gardens that which every garden occupier is fully entitled to—sunlight and air. Thus, during the summer months the trees exclude the sun, whilst the roots are preying upon the soil, and there are added the evils of drip, and the annoyance from falling leaves, creating discomfort and dirt. I have heard many complaints from unoffending occupiers of suburban gardens of such evils as these, all arising from ignorant action on the part of owners in planting most unsuitable subjects, and the not less stupid obstinacy of the occupier to refuse to abate the nuisance. Of course, with or without giving notice, the occupier aggrieved may cut back overhanging trees to his own fence-line; but what an ungainly object is thus presented! Still, there remains the exclusion of light and air, and the soil-robbery goes on all the same. A general law which prevented the planting of unduly large-growing trees and shrubs in small gardens would prove to be the best corrective of what is, much more largely than is generally known, a great evil. *A. D.*

INTRODUCTION OF THE ORANGE INTO EUROPE. — In the *Gardeners' Chronicle* of January 21, it is stated that, "According to Bretschneider, the Portuguese claim to have introduced the Sweet Orange from China into Europe before the middle of the sixteenth century." In all the accounts of Oranges I have read in my studies of the Citrus, I invariably found that "the sweet Orange" is mentioned; but I have never seen it stated which sweet Orange is meant. There are several varieties of sweet Oranges, and the sweetest I ever tasted was a small Orange grown on the borders of Nepal, north of Gorruckpore, known there under the name of Súntola, and belongs to the Súntara race. The only fault I found in this Orange was that it was too sweet. I fancy the sweet Orange to which Bretschneider refers is that known in various places of the Mediterranean by the name of "Portogallo," and in the Levant "Portugan," both which distinctly point to its origin in Europe. It is the Valencia Orange, the St. Michael's, and their varieties. All Oranges are at first sour, and, for the most part, they sweeten as they ripen. The Seville, or marmalade Orange, never sweetens. This is often called "bitter Orange," but in reality the bitterness is solely in the rind, or its essential oil, the pulp being only sour. *E. Bonavia, M.D.*

POTATO WOODSTOCK KIDNEY. — This now almost ancient Potato, for it was raised by Mr. Robert Fenn at Woodstock some twenty-six or more years ago, has had its name resuscitated through the publication of the very interesting matter furnished to the Royal Horticultural Society's Scientific Committee by Mr. Arthur W. Sutton, in detailing the results of curious grafting experiments with Potatos and Tomatos. Even if we did not know through the effects of the Potato-fungus on Tomato-plants how closely Solanum tuberosum and Lycospermum esculentum are allied, we should certainly more fully realise it when learning of the grafting experiments at Reading. But in relation to the Woodstock Kidney Potato, pollen of which was employed in connection with other cross-fertilising experiments, it was in its more youthful days one of the most free-producers of pollen and flower self-fertilisers I ever knew. I employed its pollen with scores of diverse varieties and with great success. I do not know whether it still retains that fecund character. Generally, modern Potatos produce little or no pollen; and so much are their efforts directed to the production of tubers, that they have not any left to enable pollen to be formed. Some persons regard that as being indicative of constitutional weakness. I do not. It is simply a diversion of plant-force from one direction to another, and to the grower of Potatos a far more profitable one. Reading Russet used to produce pollen and seed-berries freely, but that feature is not much seen now. Woodstock Kidney produces handsome white tubers, of distinctly superior table excellence, but the plants invariably suffered, as all first-class varieties suffer, from disease. It is odd that, whilst being so good a variety, it should be almost forgotten; its twin brother, the famous International Kidney, which gives the most beautiful of tubers in appearance, and most indifferent in flesh, is now grown in great quantities in the Channel Islands and elsewhere for the supply of the British market in the spring and summer, and which, in an unripe state, are freely consumed by the unthinking public. *A. D.*

SEEDING OF BEGONIA GLOIRE DE LORRAINE.— It may interest your numerous readers to know that in the gardens here, a small plant of the above possesses a seed-pod which I hope will prove fertile, but, like Mr. Hemsley, I fear it will not, seeing that the male blooms are devoid of pollen. May it be accounted for by the absence of sunshine to bring to pollen out in the dull winter months, or is it peculiar to the variety (a result of hybridity)? I shall retain the pod on the plant in order to ripen the seed, if any. The male blooms may, with stronger sunshine, become furnished with the pollen-grains. The plant is from a late-struck cutting. *A. S. Cole, Moncrieff Gardens, Bridge of Earn, N.B.*

—— It would be interesting to know when pistillate flowers were first observed in this plant. As far as I can gather, although it was certificated six years ago, and has been extensively cultivated each succeeding year, female flowers have not been produced till this season. In a small collection I have noticed this year, about a dozen plants produced one pistillate flower each; one plant, however, produced three, and two others produced two female flowers each, but a careful examination has failed to discover any pollen or a perfect stamen. We shall shortly see whether Mr. Hemsley's surmises are correct. with regard to the fertility of these flowers. There seems no reason why they should not produce seed. Judging from outward appearances, the stigma appears perfect, and is responsive to the application of pollen-grains; flowers pollinated one day close their petals over the stigma in twenty-four to thirty-six hours. In one case, when the pollen of a species was used, the petals closed on the third day. I have in my small collection eight of these ovaries swelling away nicely, and I hope for some good results, however small, as doubtless do many other growers. Next year should see some very interesting forms and varieties, judging from what one hears. The behaviour of these hybrid flowers under cultivation form an exceedingly interesting and fascinating study. The very much-lectured and educated young man of to-day will find scope in this study for the exercise of his powers of observation. A careful record of facts noted down at the time of observation, with the addition of all details of culture, environment, &c., will assist, perhaps, one day to eliminate the mystery of the strange behaviour of cultivated hybrid flowers. Hybrid Streptocarpi are very full of interest to the watcher; one plant with me last summer produced an erect, regular flower with equal lobes and five perfect stamens. I fertilised it, obtained seed, and have sown it. Please do not discourage me, Mr. Hemsley. *A. F.*

THE DUNS CASTLE ARAUCARIAS.—With reference to the article in the issue of 28th ult., containing a reference to the fine specimens of Araucaria at Duns Castle, I am sure it will interest many, and especially those readers who live in that locality, to learn something of the date of the planting these grand trees. Just sixty years ago, my father, then an apprentice in the gardens at Duns Castle, carried these plants in a basket from a little nursery near the lake "Hen Poo," and assisted to plant them. They were then some 18 inches high. What is now the lawn was at that date a geometrical flower-garden, laid down in box; two of these trees were planted there, and the third was placed as a centre plant in a rosary, but some years later it was moved to where it now stands. *D. Crombie, Feb.* 8.

LAW NOTES.

A LICENSE TAX ON JOBBING GARDENERS.

(*See pp.* 74 *and* 94.)

The prosecution instituted by the Inland Revenue Authorities for Manchester against Mr. Treeby, a nurseryman there, for employing a male servant as a gardener, employed in keeping gardens in order without a license, which it was alleged was necessary, has naturally created much stir in the gardening world. We therefore applied to Mr. Chas. Butcher, solicitor to the Nursery and Seed Trade Association for a statement of opinion, which he has kindly furnished, and which runs as follows :—

ASSESSED TAXES. MALE SERVANTS.

Instructions to Counsel to advise on behalf of Nurserymen.

Nurserymen enter into contracts with householders, who do not keep a gardener in their sole employ as a servant, to keep their gardens in order by the year for a fixed price, payable periodically; and for that purpose nurserymen keep a staff of men, and send one or more to the residences of householders for a certain number of days, or portion of a day, in each week, varying with the size of the garden, and the time of the year. The men so employed are engaged and paid by nurserymen, are under their entire control, and they can keep them at work on their nurseries, wholly, or in part, or send them to residences when necessary to fulfil contracts. Some men so employed give or receive a week's notice to leave; others discharge themselves, or can be discharged by nurserymen, by a day's notice, or a day's pay in lieu thereof, according to arrangement.

Although it is usual to send the same gardener from week to week to the same householder (as the latter do not like strange men), it is not compulsory to do so.

Owners of establishments engage gardeners or under-gardeners for a period subject to an agreed notice on either side to determine the same, whereas the engagements of gardeners employed by nurserymen are subject to determination as before-mentioned, and they lose time when the weather is too wet to work. It is submitted that the 32 & 33 Vict. c. 14, sec. 11, relates to persons who are engaged by and in the sole employ of householders for a fixed period, and come within the definition of a servant.

Counsel will please advise: "Whether nurserymen are required to take out licenses for men they employ as gardeners for the purposes above referred to;"

"Whether any and what proceedings should be taken to quash the conviction against Mr. Treeby."

COUNSEL'S OPINION.

"This is an important and difficult question, on which it is certainly desirable to obtain without delay an authoritative decision. It is impossible, in my opinion, to contend that male servants cannot include others than men employed by private individuals for their own luxurious convenience. Hotel and restaurant-keepers must take out licenses for waiters (*Spencer* v. *Sheerman*, 23 L.T., 873). Livery-stable keepers, it is conceded, have to take out licenses for the men they employ. I incline to think, however, that 'gardeners and under-gardeners' in sect. 19 refer to the gardeners and under-gardeners of private employers, and that there was no intention to tax the trade of a nurseryman, and that no license is necessary for the men employed by a nurseryman in his own nursery. But the question whether he employs a gardener when he contracts to keep in order a stranger's garden, is a different question. It may well be argued that he is, *pro hac vice*, a private employer, who employs a gardener. The exact facts would, in each case, have to be considered to ascertain how far 39 & 40 Vict. c. 16, s. 5, applied. On the whole, I think there is a fair chance of upsetting Mr. Yate's decision. There is no appeal to Quarter Sessions. The appeal must be by special case. *H. W. Loehnis, 7, New Court, Carey Street, W.C.*"

ELLIS *v.* THE DUKE OF BEDFORD.

This case was before the Court of Appeal on the 14th inst. It is an action brought against the Duke of Bedford on behalf of the market gardeners who use Covent Garden Market, who claim, under the Act for the Regulation of Covent Garden Market, 1828, certain preferential rights in regard to cart-stands within the area for which the tolls and charges were scheduled by the Act. In December last a preliminary point of importance arose on application by defendant, and subsequently Mr. Justice Romer decided that the six plaintiffs could not unite to join their claims in one action, nor could they as private individuals sue on behalf of a class of the public in respect of public or other statutory rights. From this decision the plaintiffs appealed on Tuesday last, and the appeal was allowed by the Court. The Master of the Rolls held the opinion that the proper course was to make the Attorney-General a defendant to represent the general public as against the preferential rights of this smaller class. The plaintiffs undertaking to do that, the appeal was allowed.

SOCIETIES.

ROYAL HORTICULTURAL.

February 14.—The fortnightly meeting of the Committees, and the annual general meeting of the Fellows of this Society, was held on the above date. The display, in the Drill Hall, James Street, Westminster, was greater in extent than has been the case for some time past, and if a proportional increase be made on succeeding occasions the meetings in March and April it will again be of the abundant and overflowing character that was the case last spring. Orchids made a very grand show, there being numerous exhibits of groups, and among these a very fair proportion of novelties. Though the Floral Committee only recommended two Awards other than Medals, there were many groups of choice spring-flowering plants for inspection. Chinese Primulas again made one of the principal features, being shown by Messrs. Jas. Veitch & Sons and Messrs. H. Cannell & Sons, and there was a fine exhibit of Cyclamens from Mr. J. May, Twickenham. Forced Tulips were shown in quantity, and the hardy-plant nurserymen brought some of the earliest flowering of the Narcissus, Iris, and other choice hardy plants, that had been brought along gradually in pots in cool frames. Messrs. W. Paul & Son, of Waltham Cross, made one of their characteristic displays of Camellias in pots, which, if this be possible, should serve to arouse a greater interest in these very free-flowering greenhouse shrubs, that at the present time are to a very large extent neglected. The Fruit and Vegetable Committee awarded a First-class Certificate to a new Apple named Sanspareil, and Awards of Merit to a variety of Rhubarb, "The Sutton," and to a patent Fruit-basket. Among several collections of Apples an exhibit from Messrs. Geo. Bunyard & Co., Maidstone, called forth the highest award the Committee can give, viz., a Gold Medal.

The annual meeting was held in the Lindley Library and Council Room, in Victoria Street, and as the subjoined report shows, was a very satisfactory event. With a favourable balance of nearly £1300, and an increase in the numbers of Fellows, as great as it is continuous, there is every cause for the satisfaction generally expressed.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. Geo. Nicholson, H. B. May J. H. Fitt, R. Dean, E. Molyneux, Jas. Hudson, Geo. Gordon, Jas. Walker, J. D. Pawle, Chas. E. Pearson, Chas. Jeffries, J. W. Barr, R. W. Ker, C. R. Fielder, T. W. Sanders, E. Beckett, E. T. Cook, D. B. Crane, Herbert J. Cutbush, Chas. E. Shea, Geo. Paul, C. Blick, and E. H. Jenkins.

Mr. Chas. Turner, Royal Nurseries, Slough, showed a small group of plants in bloom of Carnation Princess May, a variety of the Souvenir de la Malmaison type, with cerise-coloured flowers.

Choice stove plants were shown in a group by Messrs F. Sander & Co., St. Albans. There was a very large plant about 4 feet high of Acalypha hispida, beside lesser-sized specimens; Dracæna Sanderiana, D. Godseffiana, Acalypha Godseffiana, and Licuala Jeanenceyi were all shown well; also a plant in flower of Hæmanthus cinnabarinus var. superba, a very showy variety of this species.

Mr. H. B. May, Dyson's Lane Nurseries, Upper Edmonton, made a display with Adiantum tenerum Farleyense, some very nice plants of which were shown; also model plants of the popular winter-flowering Begonia Gloire de Lorraine; the latter plants, in 8-inch pots, were perfect specimens of symmetry, and a mass of rose colour (Silver Banksian Medal).

Messrs. J. Hill & Sons, Lower Edmonton, made a fine exhibit of Ferns, including a batch of plants of Asplenium Hilli, a useful decorative hybrid, obtained from A. Belangeri and A. biforme. There were some fine baskets of Davallias, especially of D. dissecta, Adiantum tenerum scutum, Gymnogramma Veitchi, Pteris internata, a dark-leaved, erect-growing form, by no means common. The fronds are very durable in a cut state (Silver-gilt Banksian Medal).

Lachenalia Nelsoni, the yellow-flowered species, was shown well by Mr. Allan, gr. to Lord Suffield, Gunton Park, Norwich, from whom was a group of nine well-flowered plants.

From Sir Trevor Lawrence's garden, Burford, were shown several varieties of Helleborus, as strongly grown, well-flowered plants in pots; and cut flowers of seedling Hellebores were contributed by Mr. J. W. Rogers, Raggles Wood, Chislehurst.

Chinese Primulas were shown in large quantity by Messrs. H. Cannell & Sons, Swanley. More than half of one of the long central tables was occupied by these. The plants were in small pots (4-inch), and consisted of varieties with more or less of the characteristics of P. pyramidalis; they were very abundantly flowered. Lady Emily Dyke was again very effective. Purple Star is a fine showy one, the colour of the flowers being bright and attractive. Harlequin has white flowers, flaked promiscuously with purple. Lady Whitehead is pure white, of very nice habit. "The Lady" has been described many times; it is pure white, except the primrose-coloured centre, and more nearly represents the type than the other varieties described, the flowers being less perfect in form, and the petioles of the leaves much longer. Princess, a white flower of good form, with yellow centre, was the most attractive variety in the group. The flower is circular, but does not open perfectly flat; the margins of the petals are much divided, and the blooms are produced in wonderful abundance. There were a few newer varieties also shown in lesser quantity that are very meritorious. Altogether, the exhibit demonstrated the beauty of this strain which has been appropriately termed "decorative," as distinguished from florists' Primulas (Silver Flora Medal).

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, contributed a magnificent group of florist's Primulas. The plants showed excellent cultivation, and the habit of them, together with the size and brilliant colour of the flowers, illustrated a very fine strain. Particularly good was Gigantic Scarlet, the flowers of which have been materially increased in size, though the colour, perhaps, is nearer to crimson than scarlet. The gigantic varieties generally, in white, pink, rose (very pretty), salmon, blue, &c., were grand; all of these colours, and other shades, were also present in the ordinary varieties, in which the flowers, though hardly so large, are produced more numerously. P. stellata and varieties between that form and the florist's strain were also included in Messrs. Veitch's exhibit, thus affording an additional indication of the appreciation now extended to this strain (Silver Banksian Medal).

Mr. John May, Gordon Nursery, St. Margaret's, Twickenham, staged a most praiseworthy group of Cyclamens, the plants being as healthy in appearance as they were well-flowered. The flowers were erect, of full size, and the colours capital (Silver-gilt Banksian Medal).

Messrs. Paul & Son, Cheshunt, showed a few plants in flower of Calceolaria Burbidgei, a rich yellow-flowered hybrid, raised by Mr. Burbidge some sixteen years ago at Trinity College Botanic Gardens, Dublin, from C. Pavoni and C. fuchsiæfolia. It will grow to about 5 feet high, and is a good pot-plant for the greenhouse. In winter, this hybrid may always be seen in flower in the greenhouse, Royal Gardens, Kew. Several new Cannas were also shown, one of them, W. Tofts, a green-leaved variety with orange-coloured flowers, being very pretty.

Messrs. Wm. Paul & Son, Nurseries, Waltham Cross, Herts, showed one of the finest lots of Camellia plants that has been observed at any meeting of the Society in recent years. The plants ran from 2½ to 4 feet in height, mostly as bushes, lightly trained, or as pyramids. The foliage was good in all cases, glistening, dark green, and abundant, and the plants were literally smothered with flowers and flower-buds. The varieties noted in the greatest numbers were C. alba plena; next to this capital white variety came C. fimbriata, the best of its class, and the plants still more profusely bloomed than the first-named. Some nice plants were shown of C. delicatissima, a finely-formed creamy-white flower; C. conspicua, mottled like C. Donckelaari, but a better bloom; C. Exquisita, an imbricated petalled flower, of a deep cerise tint. As cut blooms, arranged in boxes, we noted Princess Charlotte, white; Beauty of Waltham, blush—a beautiful flower; Eugène Massina, a deeper tint of pink, and with finely-reflexed petals; Countess of Derby, Montironi (white), Lady Hume's Blush, and a pretty seedling of light pink colour, the petals edged with a line of white; and many other pretty varieties. A Silver-gilt Flora Medal was awarded to the group.

Mr. Thos. S. Ware, Ltd., Hale Farm Nurseries, near Tottenham, made an exhibit of choice hardy plants, including varieties of Narcissus in pots, a nice lot of Leucojums; also Iris stylosa, &c. Iris persica azurea, in a pot, was very pretty.

Messrs. Wallace & Co., Kilnfield Gardens, Colchester, exhibited varieties of Iris reticulata; also I. Histrio, I. Bakeriana, I. Danfordiæ, &c., flowering in pots. Several of the newer Snowdrops were also shown, including Galanthus Ikariæ, G. Elwesii, G. Whittalli, &c.

Messrs. Barr & Son, King Street, Covent Garden, London, showed Narcissus in pots, the pretty little N. minimus being represented by a dozen or so nice specimens. Snowdrops, Irises, Hellebores, and varieties of Cyclamen Coum were all very interesting.

A variety of Codiæum (Croton), with leaves of moderate width, centre yellow coloured, with shades of bronze and purple in the margins, was exhibited by Mr. Frank Lowe, The Gardens, Eastham Park. This variety is known as Lord Hillsborough, and has some merit.

Messrs. Collins Bros., Hampton, showed a large quantity of forced Tulips in considerable variety. These were displayed as market bunches, and the flowers were strong, of good size and colour, and produced upon stout and sufficiently-long stems (Silver Banksian Medal).

The Otaheite Orange (Citrus sinensis) was very well shown in a group of abundantly-fruited plants in pots, from Messrs. B. S. Williams & Sons, Upper Holloway.

A specimen of the handsome Arum Dracunculus was shown by Sir R. Wright, Headley Park, Hants.

AWARDS.

Narcissus × *Trimon.*—A hybrid between N. triandrus var. Calathinus and N. monophyllus, raised by Prof. Michael Foster and figured in the *Gardeners' Chronicle*, February 24, 1894, p. 233. The flowers are milk-white, and in the present instance were hardly so large as some that we have seen which measured 2½ inches across. For garden purposes, it is superior to both its parents (Messrs. Barr & Sons, King Street, Covent Garden).

Hippeastrum "*Sir William.*"—A very large bright crimson-flowered variety, the flower-scape being very strong, and nearly 3 feet in height. The form of the flower was not quite equal to the florists' ideal, but it is a very effective and showy variety.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshay, J. Colman, J. Gurney Fowler, H. Little, A. Outram, H. J. Chapman, W. H. Young, H. T. Pitt, E. Ashworth, W. H. Protheroe, W. Cobb, C. Winn, J. Douglas, S. Courtauld, and E. Hill.

Probably at no former February show has there been such a fine and varied show of Orchids.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr., Mr. W. H. White), the President of the Society, made a very charming display, the main features of the group being the Burford hybrid Dendrobiums and Cypripediums. Of the former were D. × Juno, of the D. × chlorostele class, but florally much superior, its brightly-coloured, well-formed flowers constituting it one of the best hybrid Dendrobiums D. × chrysodiscum and D. × melanodiscum, shown in several varieties, were also very handsome; and D. × Thalia, D. × Burfordiense, D. × Dulce, and the forms of D. × splendidissimum were also showy. Among varieties of species were D. nobile Burfordiense. Of Cypripediums, a panful of C. × Lawrebel was very beautiful; and C. × conco-Lawre, C. × hirsuto-Sallieri in several forms; C. × Leeanum Albertianum; C. × Calypso; C. × Calypso, Oakwood var.; C. Lathamianum, and distinct forms of C. villosum. Of Masdevallias a selection of nice plants was staged. Of other remarkable plants in Sir Trevor Lawrence's group were noted a splendid plant of Epidendrum Endresii, a Catasetum discolor, Odontoglossum pulchellum, O. × Andersonianum, Epidendrum paniculatum, Liparis longipes, &c. (Silver-gilt Flora Medal).

A Silver Flora Medal was awarded to Messrs. Jas. Veitch & Sons, Chelsea, for a remarkable group of hybrids and varieties. The group was brightened by a fine collection of hybrid Dendrobiums, among which were D. × Wardiano-japonicum, varieties of D. × splendidissimum grandiflorum, D. × euosmum, and the variety virginale; D. × Dominianum, D. × Dulce, D. × Cordelia, and the yellow-flowered form, flavescens. Among the species were noted a fine specimen of D. infundibulum. Of hybrid Cypripediums, C. × Enid (Spicerianum × bellatulum) is a pretty flower of middle size, ivory-white, with the greater part of the surface tinged with claret-purple. Odontoglossums were well represented. Among other noteworthy plants were the variable Epidendrum × elegantulum, a fine example of Epiphronitis × Veitchi, one of the best of the scarlet-flowered hybrids; a good plant of Cymbidium × eburneo-Lowianum, and some showy forms of Cattleya Trianæi.

J. Bradshaw, Esq., The Grange, Southgate (gr., Mr. Whiffen), received a Silver Flora Medal for a group, in which the forms of C. Trianæi were noteworthy, his C. T. regale, a very large handsome flower, good in colouring, was adjudged the best in the show; C. T. Whiffeni, of an uniform peach blossom colour; C. T. lilacinum, of a decidedly blue tint; and C. T., white variety, were also fine blooms. The group contained a number of fine forms of Odontoglossum luteo-purpureum; the delicate blush-white Lycaste Skinneri Enchantress, &c.

F. Knight, Esq., Thundersley House, Essex (gr., Mr. E. Marston), showed a group of excellent forms of Cattleya Trianæi and other Orchids (Silver Banksian Medal).

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, were awarded a Silver Banksian Medal for an effective group of Phalænopsis, principally good specimens of P. Stuartiana, P. Schilleriana, and P. Aphrodite. There were also Cypripedium insigne Millie Dow, a pretty yellow form; C. i. Ballisæ, yellow, with indistinct purplish marking on the upper sepal; C. i. Youngiana, a neat flower, and very distinct; Dendrobium Lowi, Odontoglossum crispum roseum, O. × Andersonianum, Angræcum sesquipedale, &c.

Messrs. B. S. Williams & Son, Victoria and Paradise Nurseries, Upper Holloway, were awarded a Silver Banksian Medal for an interesting and extensive group of plants, consisting of over twenty distinct and fine Cypripediums, three of the best being C. × Pitcherianum Williams' var.; C. × Lebaudianum, ano C. × nitens superbum. Also in the group were good examples of Phaius × Cooksoni; fine varieties of Cattleya Trianæi, that named Reginæ being very pretty; Lælio-Cattleya × intermedio-flava, Calanthe × Bella, the true Lælia anceps Williamsii, a good Cirrhopetalum picturatum, Odontoglossums, Dendrobium Wardianum, and forms of Lycaste Skinneri.

C. H. Feiling, Esq., Southgate House, Southgate (gr., Mr. Canham), staged a pretty group, remarkable for a selection of Cypripediums, the best of which were C. × C. H. Feiling, with all the rich dark colouring of C. × Harrisianum superbum on a much larger flower (Bronze Medal).

Mr. Owen Thomas, The Royal Gardens, Frogmore, showed a nearly white form of Cattleya Trianæi.

Messrs. Fisher, Son, & Sibray, Royal Nurseries, Handsworth, showed two remarkable, but not fully developed, varieties of Cypripedium insigne; C. i. Eveline being very singular, by reason of the white ground colour, stained with rose-purple on the petals, the upper sepal being similarly coloured. C. i. Handsworthiense was of the same class, but nearer to the type of the species.

Messrs. F. Sander & Co., St. Albans, showed Phaius × (Manni × tuberculosus), P. × orphanum (grandifolius × Marthæ); P. × D. S. Brown (amabile × grandifolius), and Cypripedium × Comet (Stonei × superciliare).

Herbert Harris, Esq., Bowdon Hill House, Chippenham (gr., Mr. W. J. Penton), showed Cattleya Trianæi, Bowdon House var., and Lælia anceps Schroderiana, both good.

J. T. Gabriel, Esq., Palace Road, Streatham (gr., Mr. E. Ranson), staged Cattleya Trianæi, Gabriel's variety, a fine flower of good colour.

Elijah Ashworth, Esq., Harefield Hall, Wilmslow (gr., Mr. Holbrook), showed a fine form of Cymbidium grandiflorum; also Masdevallia Schroderæ, Cypripedium × villoso-œnanthum, a handsome hybrid; and Dendrobium × Domicassio (Dominianum × Cassiope) of the form of D. × Cassiope, but larger, and with rose-tipped segments.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed Odontoglossum Mrs. De B. Crawshay, a distinct form with clear yellow ground, and but sparsely spotted; Lælia anceps var. Juno, a large coloured form, and L. a. var. White Queen.

H. J. Elwes, Esq., Colesborne, Andoversford, showed a pretty rose-coloured Calanthe, between C. rosea and C. Stevensii, and forms of Bletia hyacinthina.

G. F. Moore, Esq., Chardwar, Bourton-on-the-Water, showed the fine Cypripedium × Beekemanni.

F. M. Burton, Esq., Highfield, Gainsborough, showed an orange scarlet tinted hybrid of Epidendrum × O'Brienianum.

The Rev. F. Paynter, Guildford (gr., Mr. Cook), showed flowers of Odontoglossum crispum var. Brilliant, and Dendrobium Phalænopsis hololeucum.

AWARDS.

Cattleya Trianæi "Amy Wigan," from Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young). This is probably the finest colour variation of its class. The bright purplish-rose flowers had a heavy claret-purple feather on the petals, and some smaller similar markings on the sepals; the front and edges of the side lobes of the lip being of an intense claret-crimson (First-class Certificate).

Masdevallia × falcata (coccinea ♀, Veitchiana ♂), from Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), a very fine hybrid with orange-coloured flowers, nearly as large as those of M. Veitchiana. A fine plant with seven blooms was shown (Award of Merit).

Phalænopsis × Mrs. James Veitch (Luddemanniana ♂, Sanderiana ♀), from Messrs. Jas. Veitch & Sons, Chelsea. This pretty new hybrid has yellow sepals, and petals spotted with cinnamon-red, the lip being white, with red-brown spots and yellow base. A very distinct flower (Award of Merit).

Cypripedium × Orion (concolor ♂, insigne ♀), from Messrs. Jas. Veitch & Sons. A charming hybrid, with yellow flowers of peculiar form, the broad petals being wavy. The greater part of the flower is sprinkled with minute red spots, most evident on the dorsal sepal, which also has purple spots on the upper third, which is white (Award of Merit).

Phaio-Calanthe × Niobe (C. × gigas ♂, Phaius grandifolius ♀), from Messrs. Jas. Veitch & Sons. A free-growing plant, of the habit of P. grandifolius. Flowers pure white, with the face of the sepals and petals and the front of the lip of a rich rose-pink colour (Award of Merit).

Lælia-Cattleya × Warnhamensis var. Hypatia (L. cinnabarina × C. Trianæi Normani), from Messrs. Charlesworth & Co., Heaton, Bradford. A marked improvement on the original type. The flowers are yellow, with claret-crimson front to the lip, which is better displayed than in others of its class.

Catasetum discolor, from Sir Trevor Lawrence, Bart. (Botanical Certificate).

Bestrepia leopardina, from R. I. Measures, Esq. (gr., Mr. H. J. Chapman) (Botanical Certificate).

Odontoglossum × Andersonianum, from Sir Trevor Lawrence, Bart. (Cultural Commendation).

Odontoglossum maculatum anceps, from Walter Coble, Esq. (Cultural Commendation).

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. Geo. Bunyard, Jos. Cheal, Jas. H. Veitch, W. Wilks, J. Basham, A. F. Barron, S. Mortimer, Alexander Dean, C. Herrin, J. W. Bates, Geo. T. Miles, Geo. Wythes, H. Balderson, F. Q. Lane, J. Smith, J. Willard, W. Poupart, and W. H. Divers.

Messrs. Geo. Bunyard & Co., Royal Nurseries, Maidstone, made an exhibit of something over sixty dishes of splendid Apples. The excellent manner in which Apples are preserved by Messrs. Bunyard & Co. until past May has been shown many times at the Temple Show. Those exhibited on Tuesday were such perfect examples, that the committee recommended an award of the Society's Gold Medal. Of the varieties, the following were conspicuous:—Allington Pippin, Bramley's Seedling, Newton Wonder, Belle de Pontoise, Cox's Orange Pippin, Lord Derby, Lane's Prince Albert, Gascoigne's Scarlet Seedling, Emperor Alexander, Calville Rouge, Wealthy, Twenty Ounce, King of Tomkin's County, Bismarck, and Golden Noble.

Another collection including Apples and a few Pears was shown by Messrs. Cheal & Sons, Lowfield Nurseries, Crawley. There were about sixty dishes, and the finest examples were those of Bismarck, Newton Wonder, Bramley's Seedling, Gospatrick, King of the Pippins, &c. (Silver Knightian Medal).

Mr. Geo. Wythes, gr. to the Duke of Northumberland, Syon House, Brentford, exhibited a well-fruited branch of Vanilla planifolia, also dried fruits of same, grown at Syon in 1898. A Silver Knightian Medal and a Cultural Commendation were awarded.

A basket of excellent Mushrooms was exhibited by Mr. J. W. Miller, gr. to Lord Foley, Ruxley Lodge, Claygate, Esher (Vote of Thanks).

AWARDS.

Apple Sanspareil.—This is a moderate-sized, conical fruit, that was a great favourite with the late Mr. Anthony Waterer, and is believed to be of continental origin. It is in season in February, March, and April, and is described as suitable for kitchen or dessert purposes. In colour it is chiefly rich yellow, marked upon one side with red. From Messrs. Geo. Bunyard & Co., Maidstone (First-class Certificate).

Rhubarb "The Sutton."—A very fine-looking red variety that evidently forces well. From Mr. Butler, gr. to the Earl of Ancaster, Normanton Gardens, Stamford (Award of Merit.)

Mallet's Patent Fruit-Basket.—This is a basket made by the Mallett Patent Basket Syndicate, 52, Union Road, Rotherhithe, London, S.E. It is made with upright laths, nearly but not quite joined together with wooden bands at top and bottom. The basket is perfectly round, will hold about 24 lb., and is recommended as being very much more durable, and also greatly smoother than the usual wicker-made bushels or sieves.

Annual General Meeting.

The Annual General Meeting of Fellows of this Society was held at the offices, 117, Victoria Street, Westminster, on the afternoon of Tuesday last, February 14. Sir Trevor Lawrence, Bart., President, occupied the chair, and among those present were Sir W. T. Thiselton Dyer, Director of Kew; Sir John T. D. Llewelyn, Bart.; and Messrs. Rev. W. Wilks (secretary), Rev. G. Engelheart, P. Crowley, H. J. Veitch, H. J. Elwes, Prof. G. Henslow, T. B. Hayward, J. T. Bennett-Poë, Jas. Hudson, R. McLachlan, C. E. Shea, Arthur Sutton, Geo. Bunyard, W. Roupell, and Geo. Paul.

The minutes of the last general meeting having been read and confirmed, a number of new Fellows were elected.

Mr. James Douglas and Mr. Alexander Dean were elected scrutineers.

Mr. George Bunyard, in proposing a hearty vote of thanks to the retiring members of the Council, took the opportunity to allude to a matter which he had had in his mind for some time past. He said the holders of the Victorian Medal for Horticulture formed a body of sixty, and he thought some arrangement might be made whereby they could meet at least once a year. In order to do that it would, of course, be necessary to have a secretary or someone who could call them together. He might also remind them that at the present moment they had no head. He ventured to suggest that the council might take the matter into their consideration.

Mr. George Paul seconded the motion, which was carried.

THE PRESIDENT'S ADDRESS.

The President then rose amid cheers, and said:—Ladies and Gentlemen: I have now the honour to propose the adoption of the report, which was circulated among the Fellows some days ago, and I have no doubt that those Fellows who are interested in the work of the Society have read it. I venture to remark that on no occasion—certainly not in recent years—has it been the good fortune of the Council to be able to send out a report which is in every respect so very satisfactory. I trust the Fellows will consider that the short history of the Society during the past year which is contained in the report is a very satisfactory one.

There are a few matters in the report to which I should like to allude. In the first place, I would refer to the publication of the catalogue of the Library. The Library, as I dare say those who have been Fellows of the Society for a good many years will remember, was purchased in 1866, out of the profit that was made by the Committee of the International Exhibition on the occasion of a great horticultural exhibition held in the grounds of South Kensington that year. The Library has been growing during the last ten years with the growth of the Society, but owing to there being no librarian, it has gradually fallen into a very confused and disordered condition. I am afraid that the catalogue, such as it was, was of such a nature as to promote that confusion. That, I am glad to say, has at last all been set right, and everything has been placed in proper order. That leads me to say how much I regret the absence to-day, through illness, of Dr. Maxwell Masters, under whose auspices the work has been carried on, and it is no exaggeration to say that a very warm feeling of gratitude should be entertained by the Fellows of this Society to Dr. Masters. I must not omit to mention the name of Mr. Hutchinson, who, under Dr. Masters, assisted in the work. All the serials—and they are numerous—have been put in proper order and made as perfect as it is possible to make them. The catalogue is complete, and the Council has decided to have all the cases closed in with glass so as to preserve the books from the dust and dirt of the London atmosphere, and the destructive effects of gas. Before leaving this subject, and so as not to go over the same matter twice, I should like to say that the clerical work of the Society has naturally greatly increased, and is now of such a nature that our very moderate staff, working most willingly and all hours, is unable to properly cope with it, and we have before us to-day a resolution proposing additional clerical assistance. The proposal has been adopted by the Council, and I think we shall be fortunate in securing the services of Mr. Hutchinson, who has been working here in the library. Of course, Mr. Hutchinson's first duty will be that of the clerical staff, and such time as he is able to spare from his clerical work he will be able to devote to supervising the library and keeping it in good condition.

The condition of the gardens at Chiswick of late years has been a source of very great anxiety to the council. As to the value of the garden at Chiswick, it is impossible to avoid seeing that the garden is, in a great measure, worn out. It is unfortunate that it should be so, but it is the case; and anybody who saw the garden during the severe drought of last year, would agree with me that the ground showed every indication of being, in a great measure, worn out. Not only that, but it is too small for the wants of the society. We want larger ground and better soil, and we want an opportunity of doing more extensive work than we are now able to do at Chiswck. At the same time, we have twenty years' lease yet to run, and so we shall not be able to quit Chiswick for some considerable time. I feel if we had a larger garden—a garden where more extensive and more valuable work could be carried on—it would be greatly to the advantage, not only of the Society, but to the numerous county councils throughout the kingdom, who are at a great loss to know where to send promising young men desiring to have a sound horticultural education. We have had an application from the County Council of one of the Home Counties, asking to be allowed to send a young man to Chiswick, and I am convinced, from what I know of the work of the various county councils throughout the land, that if a thoroughly satisfactory education in horticulture could be given at the Society's gardens, wherever they might be, and the councils would take advantage of the opportunity, it would be not only to the benefit of the Society itself, but what is of more importance, would be to the benefit of horticulture in the kingdom.

The next point to which I would like to refer is the awards which have been made during the past year for the meritorious exhibits by amateurs and the trade [this was alluded to in our excerpts from the report published in the *Gardeners' Chronicle*, January 28]. I do not think that at any period of the history of the Society have the fortnightly exhibits been as satisfactory, as valuable, as beautiful, and as interesting, as they have been during the past year. The fact that that is so, is abundantly shown by the large and highly interested body of visitors who now habitually come to the exhibitions. I was about to say, that there might be still room for some further restriction on the giving of Awards. We are all willing—perhaps I should say anxious—to receive Awards for our productions, but the merit of the Awards we receive is considerably diminished when we find that they are very largely shared by a crowd of other people. We have this year taken a step in the right direction.

During the last few years the Society has awarded Gold Medals, but the absolute Medal in the precious metal has not fallen into the hands of the recipient. That has been due to the fact that the financial position of the society did not allow it. But we have felt for some years that that was not a satisfactory state of affairs, and we have adopted a die for a new gold medal, not of large size, but the result will be that everybody who is awarded a medal will get the absolute gold medal.

The next question that is raised in the report concerned the exhibits of professional horticulturists and amateurs. [Also alluded to in our issue for Jan. 28. Ed.] I must say I find myself in agreement with my brother amateurs. Although we do not expect to rival the skill and successes of the great professional, we do our best. But it is like all the great games, whether it be golf or billiards, or goodness knows what, the professional always beats the amateur—beats him, as a rule, easily; and, therefore, there is some ground, I think, for saying, that some different standard ought to be applied to the exhibits of the amateur to what is applied to those of the professional.

Then the report refers to a conference on hybridisation [see Report, Jan. 28]. Well, ladies and gentlemen, I am very glad to say that the suggestion for such a Conference has been very warmly received in all quarters. It has been felt that in dealing with the question of hybridisation, which extends right through the realm of horticulture—whether we speak of flowers, plants, or fruit—we are dealing with a large and important, and very interesting, and I venture to say, a very intricate subject. We have received cordial assurances of co-operation, both from home and abroad, and I think there is every reason to anticipate that we may have an equally successful and interesting Conference next July.

I had occasion to write to a distinguished gardener the other day—Mr. Joseph Chamberlain—and I asked him to be kind enough, if he possibly could, to reserve July 12 for our banquet, and he was kind enough to say that if nothing prevented him, he would certainly do so. I think you will agree with me that every Fellow of the Society ought to do his utmost to make this a success. When we go abroad, we are received with the greatest possible hospitality and kindness. It is impossible to exaggerate the graceful and abundant hospitality—almost too abundant hospitality—which is shown to us, and we in this country would, I am sure, be very sorry indeed to be in any way backward in making some small return to our foreign visitors on this occasion.

Next, we come to the show in the Inner Temple. I do not think that we have ever had a finer show than we had last year, and I think it is very satisfactory that the quality and character of these shows should be maintained at the very highest point of excellence at which they have been maintained. Our space there is strictly limited, and we cannot put up any more tents. We have, therefore, to reserve the space at our disposal for the more interesting class of exhibits, by excluding those which are nothing more or less than gigantic advertisments.

I think the show at the Crystal Palace, having regard to the season, was satisfactory. Arrangements have been made for repeating it. It is gradually becoming in the autumn what the Temple Show is in the spring. It is a matter of very considerable importance to this country, where fruit growing is practised on a very large scale, that there should be something in the Metropolis to show what our growers are able to do; and there is not the smallest doubt, having regard to our climate, that the fruit-growers of this Kingdom have no reason to hide their heads. I believe they display more skill than the fruit-growers in any other country, even countries which are blessed with a more benign climate than ours; for I believe that there is no part of the world where horticulture is practised with such enthusiasm and success as it is practised in this kingdom.

With regard to the *Journal* of the Society (*vide* report, Jan. 28), arrangements have now been made to issue it quarterly, so that there will be a part issued at the commencement of every quarter, and I trust it will be possible to issue it regularly. The additional work entailed is very considerable, and I must in this connection refer to the indefatigable labours of our secretary. The *Journal* would soon come to an end were it not for two things—first, the very valuable papers that are written for it, and our fortnightly meetings; and secondly, the admirable way in which the *Journal* is edited by our secretary. No labour is too great for him—no sacrifice of time and leisure is too great for him to make, and the Society owes a deep debt of gratitude to Mr. Wilks for his work in connection with the Society generally, and the *Journal* especially. The expenses of the four numbers of the *Journal*, and posting it to the 4000 Fellows of the Society during the past year, was £1041, from which has to be deducted £460 for advertisements and sale, leaving a net cost of £581, and at that price I venture to think that every Fellow of the Society will agree that the Society is well repaid. Very important improvements have been made in the *Journal*, and a large number of woodcuts have been added; and I think we can all agree that the *Journal* is now indeed the *Journal* of the Society.

The next subject to which I should like to refer is the increase in the number of Fellows. I do not think we could have more distinct and convincing evidence of the prosperity of the Society than is shown by that increase. We made a net increase—after all deductions—of 500 members, the largest increase that has ever taken place. The additional number of Fellows already this year is also by far the largest addition that has ever come before the annual meeting. There have already joined the Society this year 167 new members, as against the largest number ever before up to the annual meeting of 116. That is the result of sticking to our business. I have always said, and I venture to repeat, because I do not think it can be repeated too often—that so long as the Society sticks to horticulture, so long will horticulture stick to it. I think it would be impossible to have a better Council than we have the good fortune to have; and no member of the Council would make a suggestion except it were for the benefit, improvement, and the progress and prosperity of horticulture.

There is not the smallest doubt that the financial position of the Society is gradually being thoroughly reinstated. We are every year adding something to our balance (*vide* Report), and that is eminently more satisfactory, if possible, than would otherwise be the case, as we are now very near the centenary of the Society.

In five years time the Society will have existed one hundred years, and the question arises in what way shall we celebrate the centenary? Some people think we should have a Horticultural hall. If that were possible, I should like these cheers accompanied by large contributions, which would certainly be very necessary. It is, perhaps, premature to say what would be the best way to celebrate the centenary of the Society; but if the Society only proceeds on its present lines up to the year 1904, it will then be in a position to undertake much more than it could profitably or wisely undertake now.

I have now only to express to the gentlemen who have served on the committees our grateful thanks to them for their labours, which have been so ungrudgingly given. Many of them travel very great distances, and I can assure them that every Fellow of the Society feels grateful to them.

I have already alluded to our Secretary, to whom we all owe so much. I think we have a good man in Mr. Wright, of Chiswick. He has done good work there, and he has thoroughly justified our selecting him to replace our old friend Mr. Barron. We owe a great deal to the whole of our staff.

I am afraid you are tired of listening to what I have had to say. It is a very great pleasure, I assure you, to be elected again and again to be President of what I may call this ancient Society. I most thoroughly appreciate the honour. My interest in horticulture has been of no recent growth. I was brought up among flowers, and although I should like to live as long as I can, I hope, when I die, it will be among flowers! The pleasure they give us is never-ending, and those who promote the culture of plants and flowers will never regret helping in the good work.

Sir Wm. Thiselton Dyer seconded the motion for the adoption of the report. He said after the very exhaustive address from the chair on the prosperous state of the society, it would only be necessary for him to make a very few remarks. Speaking as an outside spectator, he should like to say, that the work of the society was almost unique among the occupations and industries of this country. There were no pursuits, so far as he knew, in which all classes could join with equal enthusiasm, and equal pleasure, and equal profit. To the Drill Hall, which had done them such excellent service, but which he should like to see replaced by some more pleasant building, were brought the newest and choicest specimens of professional work of those who made horticulture their business. But for their shows they would have to spend many days, and make many journeys, to see as complete evidence of the progress of horticulture as they could see in that hall. No amateur hesitated to bring his work, for he was sure of just but friendly criticism. The shows at the Drill Hall illustrated to a remarkable degree what could be accomplished by co-operation. He felt peculiar satisfaction at the President's reference to the suggested Horticultural Hall—a project still deferred, but not absolutely lost sight of. He was glad to see their finances on such a sound basis, and he did not see why they should not do as the Zoological Society, the Agricultural Society, and the Surveyors' Institute, and other societies in erecting suitable edifices for themselves out of their accumulated funds. Until that time arrived they must encourage their admirable administrative body to stick to their present policy which had led to such prosperity. They must remember that they had passed through the fire a good deal, and their prosperity was the result of their tribulation. If they were to continue to do good they must have a programme—something they could keep before them as their ultimate aim, and that was the Horticultural Hall.

Mr. H. J. Elwes, F.R.S., was glad a gentleman had been appointed as librarian. He felt certain that if the Council guaranteed that the books should be well cared for, many Fellows of the Society and others would bequeath works to the Library. He offered to allow the Society to select from his books such works on horticulture as would be suitable for the library. Alluding to the Gold Medals, he thought the shepherd or the breeder should have some acknowledgment from the Council. It seemed a farce that they should all go to the exhibitor, until he did not know how many medals he had got. In conclusion, he congratulated them on the success of the Society, and said the praise was undoubtedly due to the good management.

The report was then adopted.

ELECTION OF OFFICERS.

The following were then declared duly re-elected:—President: Sir Trevor Lawrence, Bart. Treasurer: Mr. Philip Crowley. Secretary: Rev. W. Wilks, M.A. Auditors: Messrs. Harry Turner, H. B. May, and James H. Veitch.

Dr. Hugo Müller, F.R.S., Mr. Fred. G. Lloyd, and Mr. Alfred H. Pearson were elected to the Council, in the place of Sir Frederick Wigan, Bart., Rev. Geo. Engleheart, and Mr. Thomas Statter.

The President, responding to a hearty vote of thanks, said the Council had already under consideration the appointment of a sub-committee to deal with the manner in which the centenary of the Society should be celebrated. The question of granting medals to others than the exhibitors was, perhaps, more a matter between employer and employed. He had no doubt many employers would only be too pleased to hand the medals over to their men, who had really done the actual work.

The proceedings then ended.

CHESTERFIELD CHRYSANTHEMUM.

A CHAT ABOUT CHRYSANTHEMUMS.—At a recent meeting of the Chesterfield Chrysanthemum Society, Mr. NELSON, of Ashgate Lodge gardens, who introduced a "Chat" upon the cultivation of the plants, referred to certain peculiarities that he had noticed.

He asked why are some varieties so much slower as cuttings to emit roots than are others? Beauty of Castlewood, Mrs. C. H. Payne, and Col. Smith, for instance. Had the need been demonstrated for repotting the plants three times before they are put into the pots in which they are to flower? Mr. Nelson's experience was to the effect that cuttings inserted into a 3-inch pot, shifted into a 5-inch pot, and thence into the flowering pot, permitted the grower to use rougher rooting material, and was a better practice. Interesting remarks were made upon "stopping," also upon "taking" the buds; upon malformed buds, "damping" of buds, &c., and the partiality of insect pests to the flower-buds of certain varieties.

Respecting top-dressing, Mr. Nelson said, that after careful observation he had now abandoned the practice, for though roots were made subsequently in great abundance, plants that were not so top-dressed succeeded to an equal degree. Next was asked the question, Why have varieties of the Queen section been so scarce at exhibitions during the last few years? Some growers had urged that the varieties are worn out, are decrepit through age. If so, then why are not the varieties Mrs. G. Rundle and Mr. Bunn, which are older than some of the "sports" of the Queen family? It had been said that incurveds had been overfed, and one cultivator had planted his stock out in poor soil. Several years have elapsed, but that cultivator nor any other had yet exhibited blooms such as were formerly common. The difference in the keeping properties of blooms of certain varieties was remarked upon, and Mr. Nelson had found the best keeping white-flowering varieties to be Madame Carnot, Ma Perfection, Souvenir du Petite Amie, and Elsie Teichmann. Of yellow, Edith Tabor; bronze, Mrs. G. W. Palmer; crimson, Beauty of Castlewood. The two last-named varieties had been maintained fresh for a month after they had been exhibited. Mr. Nelson's last two queries were these: Why do we see some varieties in such good form during the first season, and not afterwards? How may we make our exhibitions more attractive to the general public, and of greater educational value to all?

It goes without saying, that the members present were provided with ample subjects for their subsequent discussions.

LINNEAN.

FEBRUARY 2.—Dr. A. GÜNTHER, F.R.S., President, in the Chair. Mr. Peter Chalmers Mitchell was elected a Fellow of the Society.

Mr. E. M. Holmes, F.L.S., exhibited specimens of Schimmelia oleifera, a native of Venezuela, the wood of which yields an essential oil known in commerce as "West Indian Oil of Sandal-wood." The plant, hitherto undescribed, was found to belong to a new genus of Rutaceæ, and has been named Schimmelia, after the German expert who distilled the oil, and who, with considerable difficulty, procured flowering and fruiting specimens of the plant for proper determination.

Mr. E. S. Salmon read a paper entitled "Notes on the genus Nanomitrium, Lindberg." This genus had hitherto been regarded as cleistocarpous. Examination of fresh specimens of N. tenerum showed, however, that the capsules possessed a distinct zone of specialised cells—delicate, narrow, and transversely elongated, clearly marking off the upper part of the capsule as a lid. The same structure was found in the original specimens collected by Brentel, in Mitten's Sussex specimens, and in various continental examples. The remaining four species of the genus were then examined. N. synoicum and N. Austini agreed with N. tenerum in possessing the zone of differentiated cells, and in these species, although no opened capsules were found, the author expressed the belief that a complete separation of the lid takes place in Nature. It seemed to him probable that the very thin cell-walls of the zone, which become partly disorganised, aid in effecting the dehiscence. The above-mentioned structure satisfactorily accounted for the regular dehiscence which had been observed by various authors, and figured by Sullivant.

N. æquinoctiale showed no differentiation in the cells of the capsule-wall, and was truly cleistocarpous. The inflorescence of this species proved to be polyoicous (autoicous × dioicous). In N. megalosporum, also, no differentiated cells occurred. Contrary to what had been stated by Philibert, the capsule of this species was found to possess stomata, and generally to show a structure similar to that of Ephemerum.

The author pointed out that the characters by which Nanomitrium had been separated from Ephemerum were insufficient, and considered that the former genus should be limited to N. tenerum, N. Austini, and N. synoicum, referring N. megalosporum (and perhaps also N. æquinoctiale) to Ephemerum. The essential character of the genus Nanomitrium was the presence of a zone of differentiated cells, by which a regular dehiscence is effected.

The systematic position of the two genera was next considered.

Lindberg had well placed Nanomitrium in the Funariaceæ, but considered Ephemerum to belong to the Tortulaceæ. Reasons were given for supporting Dixon's opinion that Ephemerum also belonged to the Funariaceæ.

In conclusion, the author remarked that, since his paper had been written, he had noticed that in the last part of his *Organographie der Pflanzen*, Goebel had investigated the capsule of Nanomitrium tenerum, with special reference to the development of the columella. In one of the figures given of a longitudinal section of a ripe capsule, the differentiated cells of the capsule-wall are shown, and are referred to in the explanation of the plate as the annulus. Nothing further on this point is mentioned, and the dehiscence of the capsule is not referred to.

A discussion followed, in which Dr. R. Braithwaite and Mr. E. M. Holmes took part.

Mr. F. W. Stansfield, M.B., read a paper "On the Production of Apospory by Environment in Athyrium filix-fœmina var. uncoglomeratum, an apparently barren Fern." This had been effected by cutting off parts of the immature fronds, and allowing them to expand during eighteen months in an uniformly humid atmosphere. The result was the production in the ultimate divisions of a meristematic tissue which gave rise to (1) gemmæ or bulbils, (2) prothalli, producing both apogamous buds and ordinary sexual axes of growth. One of the prothalli had been examined, and found to bear both archegonia and antheridia. On layering the primary fronds produced by apospory, it was found that these readily gave rise to fresh aposporous growths. The ease with which apospory was induced in the primary fronds, as compared with the extreme difficulty in the case of fronds from an older plant, was said to be characteristic of aposporous Ferns in general, Mr. Stansfield having observed it in every case (eight in all) in which he had raised Ferns by apospory. Assuming the truth of the "recapitulation" theory, he suggested that this fact indicated that apospory was an atavic trait in Ferns.

Mr. Stansfield's culture was exhibited, and showed the primary aposporous prothalli with fronds of the sporophyte proceeding from them, the latter being layered and having secondary aposporous prothalli, bearing root-hairs, growing from them.

In a discussion which followed, Prof. Farmer and Mr. C. T. Druery took part, the latter taking occasion to exhibit a new form of Scolopendrium vulgare, showing apospory profusely developed in the heavy fimbriated crests peculiar to that variety, and distinguishing it from Scolopendrium vulgare var. crispum Drummondiæ, also shown for comparison. A culture from said crests was also shown displaying prothall with root-hairs, archegonia, and antheridia as developed after layering. A variety indistinguishable from var. Drummondiæ was also exhibited in conjunction with, and originating from, a mass of prothalli produced from material supplied by Mr. E. J. Lowe in connection with his paper "On Discoveries resulting from the division of a prothallus of a variety of Scolopendrium vulgare" (*Linn. Soc. Jour.*, Bot xxxii. p. 529). Mr. Lang's culture yielded similar results; and Scolopendrium vulgare var. crispum Drummondiæ being an aposporous Fern, this leads to the presumption that the phenomena recorded by Mr. E. J. Lowe were mainly due to inheritance and not all induced by division, although young plants raised by the exhibitor from var. Drummondiæ did not present such extreme aposporal features as did Mr. Lowe's, which in some cases bore all the sexual features without being layered. This and the stunted nature of the young plants might perhaps be referable to the check of repeated division, but not the apospory *per se*.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

FEBRUARY 7.—The monthly meeting was held on the above date, at 5, St. Andrew Square, Edinburgh.

There was a large attendance of members, with the retiring president, Mr. Todd, in the chair. The minutes of the last meeting were taken as read and confirmed. Thirty-three new members nominated at the last meeting were admitted as members, and a large number nominated for admission next month. Mr. Todd recommended Mr. Malcolm Dunn as a life member of the Association, and made a genial speech in resigning his office of President, expressing the pain and the pleasure his two years of office had given him, which had proved years of special success. His last duty in the chair was to introduce his successor, which he did with much pleasure, Mr. C. W. Cowan, Vallyfield, Penicuick, as a gentleman, the head of a family so long distinguished in the public and commercial life of Edinburgh, as well as for the skill shown in the culture of Narcissus, alpines, and other hardy plants which had converted their home and nursery into a sort of floral paradise.

Mr. Cowan took the chair amidst great applause, confessed that he was no great speaker, but in the time of Daffodils, he would be pleased to see all the members at Vallyfield to see them for themselves. He concluded by promising to let Mr. Laird, their Secretary, know when the Daffodils were at their best, and hoped with their assistance to do his best to serve the Association. Having had the good fortune to see this rich, varied, and rare collection of Daffodils last summer, the writer can assure the visitors of a great feast of good things. Mr. Peter Loney then proceeded to give an able and informing lecture on "The Insect Pests of the Garden." He gave vivid descriptions of the structure, modes, and rapidity of reproduction, and tremendous powers of destruction of insect pests, common and destructive in gardens.

Mention was made of the Pea and Bean-beetle (weevil), the Onion-maggot, and the Beetroot-fly. Mr. Loney based his descriptions and the facts relating to the generation of insects on Miss Ormerod and other high authorities, and clearly illustrated his points through an interesting series of greatly magnified diagrams. He also suggested various remedies, and did ample justice to birds, parasitic mites, and especially lady-birds, as powerful friends to the cultivator.

Having stated that he had no certain cure for the Onion-maggot, Mr. D. T. Fish declared he had, viz., autumn or February sowing, which pushed the Onions beyond the nesting, that is, the three-bladed stage, before the advent of the fly. Onions do not suit their taste nor capacities when larger and tougher.

The late President as usual, and out of special compliment to the new President, Mr. Cowan, showed a superb stand of Daffodils firmly supported by a wire frame that holds every bloom in its place. There was also a fine bunch of the immensely popular Acacia dealbata, which seemed blanched white in the gas-light; and a very fine spray of Clematis indivisa lobata or grandiflora, the latter from Mr. SMALE, Glenburne, Oswald Road. Especially dwarf and broad Brussel Sprouts plants also excited a good deal of interest.

The meeting concluded with the usual cordial Vote of Thanks to Mr. Loney and Mr. Cowan, the new President. *D. T. F.*

NATIONAL CHRYSANTHEMUM.

FEBRUARY 13.—The Executive met at 265, Strand, on the above date.

Mr. PERCY WATERER, the newly-elected chairman, presiding; a series of resolutions were passed, among them one acknowledging the services Mr. T. W. Sanders had rendered to the Society, and it was further resolved that the large Gold Medal of the Society, together with an address engraved on vellum, should be presented to Mr. Sanders. The date of the annual outing was fixed for July, when, by kind permission of Lord Rosebery, a visit will be made to the gardens of Mentmore.

Messrs. C. Blick, R. Kenyon, and A. Wright, were elected on the Floral Committee, in the places of retiring members; and R. Kenyon and J. W. Simmons on the Classification Committee. The Schedule Revision Sub-committee, and also that for Finance, were appointed.

A report was brought up from the Schedule Revision Sub-committee, showing that the November schedule had been augmented to the amount of £55. A new class is for twelve vases of five blooms of specimen Japanese Chrysanthemums on long stems, 1st prize, £20 and a large Gold Medal, given by Mr. H. J. Jones; the society adding a 2nd prize of £15 and a small Gold Medal; a third prize of £10 and a Silver-gilt Medal; a fourth prize of £5 and a large Silver Medal; while every exhibitor not taking a prize will receive a small Silver Medal. Mr. P. WATERER, the chairman of the committee, offers a prize of Five Guineas for the best Essay on Chrysanthemum-Rust, the Essay not to exceed 2,000 words, to be type-written, and be sent in to the secretary by Oct. 1.

A few new classes have been added, and many special prizes are further offered.

The qualification to exhibit in Division A, reads:—"For those who mainly, if not entirely, personally cultivate their Chrysanthemums, and employ but one assistant regularly, and does not grow for sale. Single-handed gardeners, who grow for their employers, can also exhibit in this section; but in all cases of entry, the name and address of the employer in full must be given, and will appear first on the exhibition-card."

The definition in Division B, is in effect: "For those who employ no paid assistance in the culture of their Chrysanthemums, and are the *bonâ-fide* growers of their plants. No person who is employed in a nursery, or public or private garden, can compete in this section, and any act of selling cuttings, plants, or blooms, unless seedlings or sports, will disqualify."

BRISTOL AND DISTRICT GARDENERS'.

FEBRUARY 10.—The fortnightly meeting of this Society was held at St. John's Parish Room, Redland, on the above date, Mr. W. A. GARAWAY in the chair.

The subject for the evening was the "Culture of Hardy Fruit," a paper upon which was read by Mr. E. Poole, F.R.H.S., of Downend.

THE WEATHER.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.			BRIGHT SUN.	
	Above (+) or below (−) the Mean for the week ending February 11.	ACCUMULATED.				More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.					
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	0 aver	3	31	− 30	− 16	1 −	29	6·6	9	15
	1 +	4	32	− 37	+ 6	7 +	29	5·0	10	18
2	4 +	25	16	+ 30	− 77	2 +	20	3·2	14	16
3	6 +	25	8	+ 60	− 144	2 +	29	8·0	17	28
4	6 +	30	10	+ 48	− 110	8 +	30	5·0	10	21
5	7 +	36	0	+ 74	− 137	7 +	28	4·6	11	25
6	2 +	10	16	− 7	− 14	6 +	30	8·0	4	15
7	4 +	27	6	+ 47	− 77	6 +	30	6·2	13	39
8	6 +	41	0	+ 58	− 81	15 +	30	9·5	20	22
9	3 +	23	6	− 5	− 9	7 +	33	5·6	8	21
10	4 +	36	0	+ 27	− 82	20 +	32	9·1	14	22
*	7 +	65	0	+ 128	− 46	6 +	30	6·5	29	28

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

MARKETS.

COVENT GARDEN, FEBRUARY 16.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. ED.]

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Apples, per bushel	3 0- 4 0
— Beefings, bushel	4 0- 6 0
— Greenings, per bushel ...	4 0- 5 6
— Wellingtons, bushel ...	6 0- 9 0
— Sourings, per bushel ...	4 0- 6 0
— French, Reinette Gris, cases... ...	4 6- 6 0
— — Dieu Donné, cases... ...	10 0 —
— — Crabs, bush.	4 0- 5 6
— — large cookers, cases... ...	7 6 —
— Nova Scotia Baldwins, Greenings, Gold Russets, & other sorts, per barrel ...	14 0-25 0
— Californian New Towns, Fancy Reds, &c., per case	7 0-10 6
Bananas, per bunch	8 0-11 0
Chestnuts, Italian, per bag ...	7 0-14 0
Cobnuts, per 100 lb.	30 0-40 0
Cranberries, American, box ...	12 0 —
Grapes, English, Alicante, lb. ...	1 6- 2 0
Grapes, Gros Colmar	1 6- 2 3
— Muscats, per lb.	5 0- 6 0
— Almeria, p. doz. lb.	8 0-10 0
— Belgian, lb. ...	1 0- 1 5
Lemons, per case...	7 0-10 0
Lychees, Chinese, packet, 1 lb. ...	1 6 —
Nectarines, Cape, case of 28 ...	18 0- —
Oranges, Jaffa, cases	10 6-11 0
— Denia, case of 420 or 714 ...	7 0-11 6
— Mandarin, pkt. of 10 boxes ...	5 0 —
— Valencia ...	7 6-12 0
— Seville Bitter, per case ...	4 6- 5 6
— Tangierine, box of 25... ...	0 6-0 10
Peaches, Cape ...	
— per case of 24...	10 0-14 0
Pears, Californian, Easter Beurré, case, 108 ...	18 0 —
— — half-cases ...	8 6 —
Plums, Cape, cases of 30	10 0-12 0
Pines, St. Michael's, each	3 0- 6 0
Strawberries, p. lb.	10 0-16 0
Walnuts, kiln-dried, Naples, cwt. ...	36 0 —
— — peck ...	3 6 —

POTATOS.

Beauties, Saxons, Giants, Up-to-Date, &c., according to sample, 60*s.* to 80*s.* per ton; Dunbar Main Crops, 90*s.* *John Bath, 32 and 34, Wellington Street, Covent Garden.*

REMARKS.—Savoys nearly all over, and of all green vegetables a short supply.

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Anemones, dozen bunches	1 0- 1 6
Arum Lilies, dozen blooms	3 0- 4 0
Asparagus "Fern," bunch	2 0- 3 0
Azalea, white, 12 bunches	4 0- 6 0
Bouvardias, per bun.	0 4- 0 6
Carnations, per doz. blooms	1 6- 3 0
Eucharis, per dozen	2 6- 4 0
Gardenias, per doz.	6 0-10 0
Hyacinths, Roman, per doz. bunches	5 0- 6 0
Lilium longiflorum, per dozen ...	6 0- 9 0
Lily of the Valley, dozen bunches ...	6 0-10 0
Marguerites, 12 bun.	4 0- 5 0
Maidenhair Fern, per doz. bunches	6 0- 9 0
Narcissus, White, p. dozen bunches ...	1 6- 2 0
Orchids, per dozen blooms	6 0-12 0
Pelargoniums, doz. bunches	4 0- 6 0
— scarlet, per doz. bunches	8 0-10 0
Pink Roses, per dozen	4 0- 6 0
Roses (indoor), doz.	1 6- 2 0
— Tea, white, doz.	2 0- 3 0
— Perle, per doz.	1 0- 2 0
— Safrano, p. doz.	1 6- 2 0
Smilax, per bunch	2 0- 3 0
Tuberoses, 12 blms.	0 8- 1 0
Tulips, per dozen...	0 6- 1 3
Violets, per dozen bunches	0 6- 1 6
— Parma, bunch	2 0- 2 6

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Arbor Vitæ, p. doz.	12 0-36 0
Aspidistras, p. doz.	18 0-36 0
— specimen, each	5 0-10 0
Dracænas, various, per doz.	12 0-30 0
— viridis, p. doz.	9 0-18 0
Euonymus, various, per dozen ...	6 0-18 0
Evergreens, in var., per dozen ...	6 0-24 0
Ferns, in variety, per dozen ...	4 0-12 0
Ferns, small, per 100	4 0- 6 0
Ficus elastica, each	1 0- 5 0
Foliage plants, var., each	1 0- 5 0
Lycopodiums, doz.	3 0- 4 0
Marguerite Daisy, per dozen ...	6 0- 8 0
Myrtles, per doz....	6 0- 9 0
Palms, various, ea.	1 0-15 0
— specimens, ea.	21 0-63 0
Scarlets, per doz.	4 0- 6 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Artichokes, Globe, per doz. ...	2 6- 3 0
— Jerusalem, per sieve	2 0 —
Asparagus, Paris, green	6 0 —
— Giant, bundle..	18 0-20 0
— Spanish, bund.	2 0 —
— Sprue	0 9 —
— English, per 100	7 0- 8 0
Beans, Dwfs., Channel Islands, lb.	2 0 —
— French, per lb.	0 8 0 9
— Madeira, bkt.	2 6- 3 0
Beetroots, per dozen	0 6- 0 9
— bushel	2 0 —
Broccoli Sprouts, per bushel ...	3 0 —
Brussels Sprouts, per sieve ...	2 3- 3 0
— per bushel ...	6 0 —
Brussels tops, bush.	2 6 —
Cabbage, Coleworts, per bushel ...	3 0 —
— Savoys, p. doz.	1 0- 2 0
— — per tally ...	8 0-10 0
Cauliflowers, p. doz.	1 9- 2 6
— per tally ...	8 0-10 0
— Italian, baskets of 18	3 6 —
Celeriac, per dozen	3 0 —
Carrots, washed, in bags	3 0 —
— unwashed ...	2 0- 2 6
— Surrey, bunchs.	2 0- 2 6
— French flats ...	1 6- 2 0
Celery, Red, dozen bundles ...	8 0-12 0
— unwashed ...	6 0-10 0
Chicory, per lb. ...	0 3 —
Cress, doz. punnets	1 6 —
Cucumbers, per doz.	6 0- 8 0
Endive, French, per dozen	2 9 —
— Batavian, doz.	2 6 —
Garlic, per lb. ...	0 3 —
Horseradish, New English, bundle	2 0- 2 6
— — loose per doz., fine ...	2 0 —
— Foreign, per bundle... ...	1 0- 1 3
Leeks, doz. bunch.	2 0- 2 6
Lettuce, Cabbage, per doz. ...	1 6 —
Mint, new, forced, per doz. bunch., according to size of bunch...	4 0- 9 0
Mushrooms, house, per lb.	0 8- 1 0
Onions, Albanians, bags	6 0- 6 6
— Dutch, per bag	5 0- 5 6
— English, cwt...	6 6- 7 0
— Valencia, cases	9 6-10 0
— picklers, sieve	3 0 —
Parsley, per dozen	2 0 —
— sieve	1 0 —
Parsnips, per dozen	0 6- 0 9
— cwt. bags ...	3 0- 3 6
Peas, French, pkts., about 1 lb., doz.	4 0 —
Potatos, Hebrons, Snowdrops, Up-to-Date, &c., per ton	60 0-80 0
— New Algerian Kidneys, per lb.	0 2-0 2½
— — Frame, lb.	0 4- 0 5
— — Teneriffe, per cwt. ...	11 0-14 0
Radishes, Round, breakfast, per dozen bunches	1 9 —
Rhubarb, York, per doz. bundles ...	1 0- 1 6
Salad, small, punnets, per dozen	1 3 —
Scotch Kale, bushel	2 6- 3 0
Seakale, per dozen punnets ...	12 0-14 0
Shallots, per cwt....	8 0- 9 0
Spinach, French, crates	3 6- 6 0
Tomatos, new English, per lb.	1 0- 1 3
— Canary, boxes..	2 0- 4 0
Turnips, Eng., per doz. bunches ...	3 0 —
— in bags... ...	2 0- 2 6
Turnip-Tops, bag ...	5 0 —
Watercress, p. doz. bunches ...	0 6-0 10
Yams from Canaries, case	7 0 —

ANSWERS TO CORRESPONDENTS.

ACHIMENES: *W. W.* Longiflora and l. alba patens and patens alba, Ambroise Verschaffelt, picta, Argus, Dazzle, Dr. Hopf, Grandis, Mauve Queen, Sir Treherne Thomas.

BOOKS: *W. H. B.* No very modern manual on the subject is in print. One of the best is *Artistic Flower Decorations*, illustrated by B. C. Saward, and published at the *Bazaar* office, price 2*s.* Enquiry at the office, 170, Strand, would elicit information concerning the little work. There are, we believe, several manuals on the subject in the German language.—*Illustrated Flora. Paul Emery.* As you do not say of what country, we cannot answer you.

BROAD BEANS: *F. K.* Sow now in late and early positions.

Calceolarias Turning Brown at the Edges of the Leaves: *Forfarshire.* This may arise from bruising, or punctures made by insects (aphis), or from excessive dryness of the air, or many other causes, which, for lack of information, we can only surmise.

Chrysanthemum "The Queen:" *X.* Your experience certainly proves the variety to be a good one for affording blooms during January.

Conservatory Heated by Gas-boiler: *W. W.* The plants die because the products of combustion, or the gas, gets into the house, or noxious fumes from another source.

Cool-house Orchids: *G. T.* Odontoglossum gloriosum, O. Pescatorei, O. triumphans, O. Servantesii, O. Rossii, O. macranthum, Oncidium macranthum, On. tigrinum, On. varicosum, Vanda Kimballiana (should be wintered in a warmer house), Masdevallia Harryana, M. Veitchi, M. ignea, Epidendrum vitellinum, Disa grandiflora, Dendrobium Jamesianum, Cypripedium insigne, C. villosum, Cœlogyne cristata, Lælia præstans, Anguloa Clowesii, Ada aurantiaca, Cattleya Gaskelliana, C. Warscewiczii (gigas), C. labiata, C. Mendeli, C. citrina, Cymbidium eburneum, Lycaste Skinneri, Thunia Marshalliana, Sobralia macrantha, Calanthe × Veitchi, and vars. of Calanthe vestita, Dendrobium nobile, D. Ainsworthi, D. aureum, D. Findlayanum, and some others. At certain seasons either of growth or rest, some of the plants named will require to be transferred to the intermediate or East Indian-houses, but most of them may be cultivated the year round in the cool-house. The list is by no means an exhaustive one, but rather a selection of species not difficult of cultivation.

Correction: Royal Horticultural Soc. lecture, see *Gardeners' Chronicle*, February 4, p. 78, for muriate of potash read 2 cwts., not 20 cwts.

Crocus: *Bradford.* The corm has seemingly failed to flower, because it had made top-growth before there was root-activity. In the case of all bulbs, efforts should be made to induce the formation of roots before any leaves are pushed forth.

Crotons: *F. K.* You will be doing rightly by cutting-back the plants severely, employing the healthy tops of branches for cuttings if you require young plants. They will readily strike in sandy soil, in strong heat, under a hand-light.

Cultivating Cucumbers and Tomatos for Sale: *G. R.* Considering that you know nothing about the culture of these plants, we consider that you are a very rash man to embark forthwith on the business of a market grower. Had you not better study the methods of cultivation at a market garden first, meanwhile reading a manual on each —there are many—and then start the business?

Flowering Season: *Veritas.* Cymbidium aloefolium flowers in September; and Trichopilia laxa in October.

Gardeners' Directory: *Leafless.* Procure the *Horticultural Directory and Year-Book*, published at *Journal of Horticulture* office, 12, Mitre Court Chambers, Fleet Street, London, E.C.; or, *The Garden Annual*, published at 37, Southampton Street, Strand, W.C. The cost of either is 1s.

Manures for Potatos in the Place of that of the Farm-yard: *A. C. C.* That from the piggeries, if partially decayed, or well-fermented dung from a dovecot; Peruvian guano, native guano, fish-manure, raw and dissolved bones, bone-meal, superphosphate of lime, or night-soil. Most of these would serve as a top-dressing, together with muriate of potash, at the rate of 2 oz. to the square yard, for the fruit-trees.

Moss on Lawn: *F. K.* See p. 80, in our issue for February 4, present year.

Mushrooms: *W. Button*, and *Geo. Farmer.* Such abnormalities are not uncommon, and we have figured in back numbers of the *Gardeners' Chronicle* specimens even more monstrous than are yours. On p. 510, April 4, 1894, you may see a Mushroom springing normally from the bed, bearing upon its apex an inverted specimen, and this again surmounted by another in correct position. In regard to the "cluster" of forty-five Mushrooms mentioned by *W. Button*, we may refer him to the *Gardeners' Chronicle*, June 18, 1898, p. 381, where was figured a cluster which included 104 Mushrooms, and weighed 5 lb. 2 oz.

Names of Fruit: *Wm. Camm.* 1, French Crab; 2, Claygate Pearmain; 3, Court of Wick; 4, Not sent; 5, Brabant Bellefleur; 6, worthless, not known. It is a pity not to send these fruits earlier in the season, when the characteristics of the varieties are more evident.—*C. Edwards.* Apple Mère de Ménage.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.* — *J. May.* Desfontainea spinosa.—*Murr.* 1, Abies orientalis; 2, Thuiopsis dolabrata; 3, Juniperus chinensis; 4, Juniperus recurva, figured in *Gard. Chron.*, April 14, 1883, p. 468; 5, Sequoia sempervirens; 6, Thuia nootkatensis alias Thuiopsis borealis.—*T. P.* 1, Lælia anceps; 2, Cymbidium Lowianum.—*H. A. B.* 1, Cryptomeria japonica; 2, Veronica species; send when in flower.—*Anxious.* Phaius grandifolius.—*J. Morris.* Cassia Chatelainiana.—*W. S. C. P.* We cannot name Violets from such specimens. You had best send them to a nurseryman who may compare them with growing plants.—*P. Penge.* 1, Asplenium bifidum; 2, Swainsonia sp.; 3, probably an Abutilon; 4, Acacia armata; 5, the grass is a species of Carex, which we are unable to name without flowers; 6, Acacia dealbata.—*Miltonia.* Your Pelargonium, for which you suggest the name of York and Lancaster, is the same as the variety cultivated by Messrs. H. Cannell & Sons, Swanley, under the name of Double New Life.—*D. McIntosh, Bray.* Pittosporum undulatum.

Narcissus for Forcing.—The following varieties of the trumpet section will be found to force well in pots:—N. telamonius plenus, Ard Righ, Golden Spur, Princess, Spurius, Horsfieldi, Sir Watkin, Henry Irving, Major, and Obvallaris. We assume you intend to procure bulbs during next autumn. No Narcissus, nor any flowering bulb, should be forced two seasons in succession, or the result will be very poor. For such purposes, always procure the very best samples possible, and when forced, they may be planted out in the grounds.

Newly-imported Burmese Orchids: *Aubipine.* Before any potting is done, hang the plants up by the heels, in a warm, very moist house, till growth of root and top begins; or place the roots in new pots, and fill up with clean crocks loosely, and wait, as by the other method. The crocks may be moistened once or twice daily as may be found necessary.

Nursery Stock (*way-going, not aged*): *Nurseryman.* You should be allowed the time customary in your district for a nurseryman to remove his stock, i.e., six months or a year after the expiration of the tenancy. If the landlord or the incoming tenant takes the stock at a valuation, that is another thing. If you took to stock, but did not pay for it, you may find it to your advantage to leave the landlord its equivalent.

Palm Seeds: *W. W.* Sow forthwith in a house, pit, or frame, having a steady heat of 65° to 80°.

Plantain and other Coarse Weeds on the Lawn: *A. H. W.* Let one person cut off the heads of leaves, and another follow him with an iron or earthenware vessel, having a high bow handle, and holding vitriol, and let him be provided with a pointed stick, wherewith to place a few drops of the vitriol on the top of each root thus exposed. The roots will die, and the bare spots may be coated with loam, and sown with the finest Grasses in April, or earlier if the weather keeps mild. These coarse weeds may be choked out of existence by encouraging the growth of the finer Grasses by means of dressings of fish manure, rotten dung, wood-ashes, and loam, but it takes some years, and the above method is very effectual as well as rapid. The man with the vitriol-pot should wear thick gloves as a safeguard.

Room Plants: *G. N.* A moderate number of scentless flowering plants in a room do not cause suffering. Strongly-scented flowers sometimes do, when in quantity, cause headache and nausea in delicate persons; as for example, Hyacinths, Narcissus, Jonquils, Crinums, Eucharis, Gardenias, Stephanotis, &c. Gardeners who work among thousands of these species of plants are not affected by them, and we doubt if others are much affected. The room must be very small and ill-ventilated where these plants cause suffering. Carbonic acid gas is given off by the leaves in small volume during the hours of darkness.

Shrubs near Dwelling-houses: *D.* There is no reason why the shrubs should not be allowed to remain in close proximity to two sides of a house, which is entirely open to the east. The house, standing on a knoll separated by dry hollows (whose sides form the shrubbery in question), from a double line of high trees 50 or 60 yards distant; and the shrubs, being below the level of the foundation, could suffer no harm, nor would the inmates. There might be offence created if much tree-foliage was permitted to rot under the bushes, but that might be averted by burning it in the middle of the spaces between them, or raking them out and carrying them to the leaf-heap. Masses of tall trees coming to within 20 yards of a dwelling are not desirable.

Soil from Brook: *Loam.* The soil you send is of such a retentive nature, that we should be disinclined to use it for the cultivation of any plant in a pot. Should you decide to make use of it in the case of Tomatos or Cucumbers in borders, you will do well to break it up as thoroughly as possible, and mix with it a good proportion of lime-rubble, burnt-ash, or other material that will be likely to render it more porous and more conducive to root-formation. You might add a little rotted manure.

Sowing Seeds of Celosia plumosa: *A. P.* Sow in the first or second week of March in well-drained pots filled with light sandy soil, in heat of 75°. Grow on the seedlings in the same degree of heat for a week or two, affording air on sunny days for a few hours, but watching the frame carefully lest injury be done by cold draughts; shade lightly, and only when the sunshine is bright. Prick off before crowding takes place, and pot off into 60's, and then in 48's. The process of hardening off must be patiently carried out, and should extend over three weeks at least. The first or second weeks in June will be sufficiently early to plant them in the beds. It is as well to have a successional sowing.

The Prevention of Stagnation of Water in a Tub containing Nymphæa Plants: *S. W.* If you could keep the water agitated by means of a little overshot paddle-wheel, which would aërate the water in the tub, as well as afford a constant intrickling supply of water, it would be as good an arrangement as any. The water might be derived from an over-head tank or barrel, or from the water mains.

Vineries: Late and Early: *E. B.* An early vinery, started about four weeks ago, should not, as early as this, be kept at 60° at night; rather, a steady maximum degree of warmth of 50° to 52° would be more suitable, and by day 60°, with air afforded in mild weather for several hours. The heat, day and night, may be increased about 1° a week. Of course, on warm days rather more than this. The fire should be banked down, or the flow in the pipes checked, if there is a difficulty in keeping a proper degree of warmth. The two Vines which have the more prominent buds, may consist of varieties that respond quicker than the other Vines in the house to the forcing process, or the house or the border is from some cause slighly warmer where they are growing. You may come upon the cause when you have been longer in charge of the vinery. Do not rely so much on the syringing of the Vines, but more on damping down. A bed of stable manure and tree-leaves is of much use in this connection, only it should not be built on the border, but on a platform raised 6 inches above it. Turn the materials once a week, and again put them compactly together. Such a heap of warm materials is useful in forcing shrubs and bulbs, rooting cuttings, or forcing Rhubarb, care being taken that the roots of the plants do not get scalded. Otherwise your methods seem all right, except in the matter of temperatures. Let the late vinery start almost without the use of artificial heat.

Vines for Sale Purposes: *A. R.* Any good manual on Vine-culture would afford the sort of information that you need. You might obtain Barron's *Vines and Vine Culture*, published at 12, Mitre Court Chambers, Fleet Street; it is one of the best.

Communications Received.—F. C.—C. Wolley Dod.—Malcolm Dunn.—R. I. L.—Justus Corderoy.—E. S., Woking.—H. W.—D. T. F.—F. W. B.—E. W. B.—W. N. B.—Col. R.—W. T.—L. C.—W. W.—G. H. T.—T B.—H. and K., Exeter—New Hampshire.—G. W. A.—F. P.—H. S.—H. F. G.—W. R.—H. P.—W. S.—C. S. F. A.—J. O'B.—P. N.—W. E.—P. Bolt.—D. T. F.—G. H.—Garten van Gesellschaft, Vienna.

Specimens and Photographs Received with Thanks.—J. D.

THE
Gardeners' Chronicle
No. 635.—SATURDAY, FEB. 25, 1899.

SUBURBAN GARDENS IN 1796.

TOWARDS the latter part of the last century, an enterprising publisher conceived the idea of producing a pocket-companion to the suburbs of London; and when the idea became transformed into a reality, it met with so much success, that edition after edition was exhausted. The title of the book was *The Ambulator; or, a Pocket-companion in a Tour Round London, within a Circuit of* 25 *Miles.* The copy which recently fell into the hands of the present writer is dated 1796 (the earliest issue which we have been able to trace is dated 1774), it being the "eighth edition, augmented and improved." Not the least interesting portion of the book is the preliminary account of the metropolis, from which we learn that the population of London at that date was computed at less than 600,000. Quoting from another author, the compiler nods approval, so to speak, to the following statement:—"The country round, especially on the London-side [of the Thames] is nearly open to some distance, whence, by the action of the sun and wind on a gravelly soil, it is kept tolerably dry in all seasons, and affords no lodgment for stagnant air or water. The cleanliness of London, as well as supply of water, are greatly aided by its situation on the banks of the Thames," and so forth. It seems almost impossible to believe that London was ever anything but gloomy and grimy, and yet here we have an unimpeachable witness to the contrary. It is not, however, with London itself that we have to deal just now, but with a few of the *Ambulator's* descriptions of the suburban gardens.

The arrangement of the book is alphabetical, and the earliest reference of more immediate interest to us occurs under Barnes, which is described as a "village in Surrey." On Barnes Terrace, we are told, Lady Archer had a villa, "noted for its fine greenhouses; it is now the residence of the Marquis de Chabe, a French emigrant." To this we may add that Lady Archer's house was furnished and decorated in the Chinese style, and that her grounds were five acres in extent, and sloped down to the Thames. Our *Ambulator* further tells us that in 1653 a certain Edward Rose left £20 to the poor of Barnes "for the purchase of an acre of land, on condition that the pales should be kept up, and the Rose-trees preserved." If Mr. Rose were to come to life again, he would be very much surprised to learn that he would be unable to purchase a bit of land large enough to accommodate half-a-dozen Rose-trees at Barnes for his modest legacy of £20!

Battersea, which is also described as "a village in Surrey," is not a place one would select for its gardening possibilities, for there is no land now left on which to experiment. Battersea Park is, however, a beautiful example of what can be accomplished in crowded districts. In 1796 Battersea "has been long famous for the finest Asparagus." The public tea-gardens of Bayswater, "a small hamlet in the parish of Paddington," were "about twenty-five years ago," the gardens of the late Sir John Hill, "who here cultivated his medicinal plants, and prepared from them his tinctures, essences, &c."

Beddington, two miles west of Croydon, was famous for its "gardens with choice fruit trees," in which Sir Francis Carew, the former owner, took great delight. He "spared no expense in procuring them from foreign countries. The first Orange-trees seen in England are said to have been planted by him." These trees were planted in the open ground, and were preserved in the winter by a moveable shed. They "flourished for about a century and a half, being destroyed by the hard frost of 1739-1740." At Brompton, "a hamlet of Kensington," "Mr. William Curtis has a botanical garden, near the Queen's Elm turnpike;" and, further, we are informed that "subscribers to this garden, at one guinea per annum, are entitled to the privilege of walking in it, inspecting the plants, perusing the books in the botanical library, and examining the extensive collection of drawings in natural history," &c. A subscription of two guineas secured still further advantages; but non-subscribers were admitted on payment of half-a-crown. Curtis had removed here from Lambeth Marsh, where he had been established for many years. A botanic garden in the evil-smelling slums of what is now known as the New Cut, seems too absurd to have been a fact, even a century ago!

The park of Bush Hill, the seat of Mrs. Catherine Mellish, is said to have been originally laid out by Le Nôtre, the celebrated French gardener.

Campden House, Kensington, which in 1796 was "an eminent ladies' boarding-school," then boasted of "a remarkable Caper-tree, which has endured the open air of this climate for the greatest part of a century, and, though not within the reach of artificial heat, produces fruit every year." Campden House still exists, but the Caper-tree, whatever it may have been, has long since ceased to produce fruit.

The account of Chelsea is largely taken up with the Apothecaries' Garden and Sir Hans Sloane. "On the north side of the garden is a spacious greenhouse, 110 feet long," and on "the south side are two Cedars of Libanus, of large growth and very singular form. They were planted in 1685, being then 3 feet high; in 1793 the girth of the larger, at 3 feet from the ground, was 12 feet 11¼ inches; that of the smaller, 12 feet 9¼ inches." Assuming the date of planting to be correct, the two famous Cedars have now weathered the storms of over two hundred years. [One died several years ago, and the other is nearly dead. Ed.]

The compiler of the *Ambulator*, in his account of Clapham, another "village" in Surrey, states what appeared to him to be a very startling fact, that a certain Mr. Baldwin "sold 14 acres of land" for £5000. It would be very interesting to know how much this little plot of land is worth at the present moment.

Eltham has during the past few years been more associated in the average person's mind with the late Col. North than with royalty or horticulture. Yet here in 1796 "the handsome garden of Mr. Dorrington" contained "a greenhouse in which were formerly kept the exotics of that eminent botanist, Dr. Sherrard. The *Hortus Elthamensis* is well known to the curious in botany."

One of the most interesting entries is that which relates to Fulham, "a village of Middlesex." The writer tells us that the gardens of the Bishop's Palace were first noted in the time of Bishop Grindall, "one of the earliest encouragers of botany, and the first who imported the Tamarisk-tree into this country, about the year 1560. Bishop Compton, who was himself an excellent botanist, made them still more celebrated by the introduction of many new plants and forest-trees, particularly from North America. Of these, the following only were remaining on a survey of the garden in 1793; and these may be regarded with some veneration by the botanist, as the parent-stocks of their respective races in this kingdom." Then follows a list of the plants, with girths taken at 3 feet from the ground, and their computed height. The trees were Acer Negundo, Cupressus sempervirens, Juniperus virginiana, Juglans nigra, Pinus Pinaster, Quercus alba, Q. Suber, Q. ilex, Acer rubrum, and two "Gleditschia triacantha."

There is an exhaustive description, historical and otherwise, of the celebrated Fairlop Oak in Hainault Forest; tradition, observes Gilpin, "traces it half way up the Christian Era," but the "high winds" of February, 1820, completely destroyed this historic tree.

Hampton Court, one of the chief "lions' of the suburbs, occupies several pages, but the only paragraph which we now quote runs as follows: "The celebrated Brown had his present Majesty's permission to make whatever improvements in these gardens his fine imagination might suggest; but he declared his opinion, that they appeared to the best advantage in their present state."

Having regard to the fact that Kensington Palace is about to be thrown open to the public, it is interesting to learn that "the gardens were originally only 26 acres. Queen Anne added 30 acres, which were laid out by her gardener, Mr. Wise; but the principal addition was made by Queen Caroline, who took in near 300 acres from Hyde Park, which were laid out by Bridgman, and they have since been improved by Brown. They are 3½ miles in circumference, and have for many years past been a very fashionable promenade."

The very long and interesting account of Kew Gardens, at that time comprising about 120 acres, is not original, but is copied from a description by Sir William Chambers.

Coming to Lambeth Palace, "the gardens and park which contain," we are told, "near 13 acres, are laid out with great taste;" and further, that they contain "two remarkable Fig-trees of the White Marseilles, which bear delicious fruit. Tradition says, they were planted by Cardinal Pole. They cover a surface of 50 feet in height, and 40 feet in breadth; the circumference of the furthermost is 28 ins., of the other 21 ins." (See *Gardeners' Chronicle*, Oct. 23, 1886, p. 528.)

Of the celebrated garden of the Tradescants "there are now no traces." Peckham, a "hamlet of Camberwell," contained the seat, built in the reign of James II., by Sir Thomas Bond (and afterwards occupied by Lord Trevor), who apparently took great interest in his garden. "The kitchen-garden and the walls were planted with the choicest fruit-trees from France, and an experienced gardener was sent for from Paris to have the management of them, so that the collection of fruit-trees in this garden has been accounted one of the best in England." The house, however, was pulled down a few months after the *Ambulator* appeared, and Hill Street now covers a portion of the site.

*

Richmond, "the finest village in the British dominions," occupies a very considerable space, for its attractions in 1796, as in 1899, were extremely numerous. The royal gardens "were altered to their present form by Brown, to whose exquisite taste in the embellishment of rural scenery the didactic poet [Mason] paid this merited eulogy, while he was living to enjoy it:—

"Him, too, the living leader of thy powers,
Great Nature! him the Muse shall hail in notes
Which ante-date the praise true genius claims
From just posterity. Bards yet unborn
Shall pay to Brown that tribute, fitliest paid
In strains the beauty of his scenes inspire."

The beautiful gardens, "stored with a great many curious exotics," at Sion House, "were principally laid out" by the inevitable Brown, whose familiar appellation of "Capability" Brown, if it does not readily lend itself to poetic treatment, is a well-earned tribute to his fertility of resource.

The last entry to which attention need be called relates to Walham Green, "a village of Middlesex." Here, we are told, is "a curious garden, planted since the year 1756, by its present possessor, John Ord, Esq." "Within a short space it has produced trees which are now the finest of their respective kinds in the kingdom, particularly the Sophora japonica, planted in 1756, now 8 feet in girth, and 40 feet high; a standard Ginkgo-tree, planted in 1767, 2 feet 3 inches in girth; and an Illinois Walnut, sown in 1760, 2 feet 2 inches in girth. Among other trees, also remarkable for their growth, though not the largest of their kind, are a black Walnut-tree, sown in 1757, about 40 feet high, and 5 feet 4 inches in girth; a Cedar of Libanus, planted in 1756, 8 feet 8 inches in girth; a Willow-leaved Oak, sown in 1757, 4 feet in girth; the Rhus vernix, or varnish Sumach, 4 feet in girth; and a stone Pine of very singular growth. The girth of the last, at 1 foot from the ground, is 6 feet 4 inches, at that height it immediately begins to branch out, and spreads at least 21 feet on each side, forming a large bush of about 14 yards in diameter.

Such, then, are a few "points" relative to the suburban gardens of rather more than a century ago, very many of which have long since given way to the encroachments of bricks and mortar. That gardening was as popular in 1796 as it is in 1899 is a fact which does not require any elaborate demonstration; and that it was, in a circumscribed manner, as successful, the few foregoing extracts will, I think, amply prove. *W. Roberts.*

NEW OR NOTEWORTHY PLANTS.

MINA CORDATA.

The *Journal de la Société Nationale d'Horticulture de France* records, in the following terms, a plant exhibited by M. Marc Micheli at a recent meeting of the above Society:—"Mina cordata is a new undescribed species from Mexico. The seeds were received in April, 1898. Sown at once, they soon germinated, and the plants developed vigorously. In September they covered a wall 10 feet high. Unfortunately, owing to the late sowing, only a few inflorescences were fully expanded before the first frosts came. In the early days of October several cuttings were made in the manner described as pursued with Mina lobata in the *Revue Horticole*, 1892, p. 455. The majority of these cuttings succeeded, and are now in bloom, some in a warm, others in a temperate-house. Therefore, it is hoped that good plants will be obtained this year. Other cuttings without a heel gave less satisfactory results. Mina cordata is in growth like Mina lobata, and can be used in similar ways. It is distinguished by having entire, cordiform, not lobed leaves, and by the colour of the flowers, which show pretty magenta stripes on a paler ground."

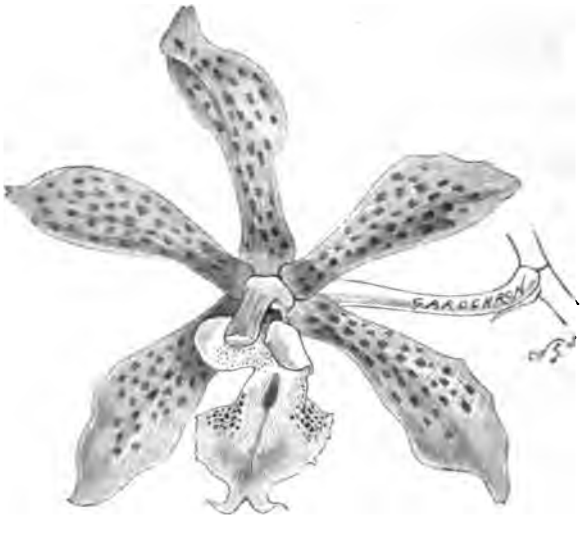

Fig. 43.—Phalænopsis × Mrs. J. H. Veitch.

PHALÆNOPSIS MRS. J. H. VEITCH.

We have in this cross betwixt P. Luddemanniana and P. Sanderiana a flower which is remarkable among Phalænopsids in shape and colouring. The sepals and petals are of a greenish-yellow tint, with brownish-crimson dots (fig. 43). The front lobe of the lip is white, and a little yellow tinge is noticeable in the throat. It received, on the occasion of its being exhibited by the raisers, Messrs. J. Veitch & Sons, on February 14 last, at the Drill Hall, James Street, an Award of Merit.

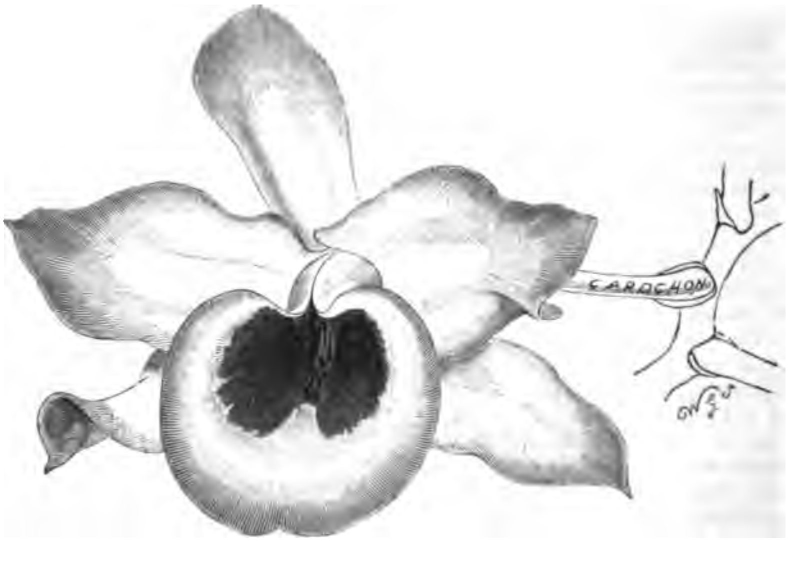

Fig. 44.—Dendrobium × Juno.

DENDROBIUM × JUNO.

A beautiful cross-bred Dendrobium was shown by Sir Trevor Lawrence, under the name given above, at the meeting of the Royal Horticultural Society on Feb. 14 of the present year (fig. 44). The parents were D. Findlayanum and D. Ainsworthi, and, as was stated in our report (*Gardeners' Chronicle*, February 18, p. 108), it belongs to D. × chlorostele group, but its bright-looking flowers are greatly superior, and their beauty is enhanced by the rich, dark purple colour of the throat, which forms a sharp contrast with the rest of the flower. It was raised, we believe, at Burford.

FERNS.

After the dull, foggy weather we have experienced during the past few months, it is interesting to note the effects produced on various classes of plants; and, although Ferns are usually associated with shade and moisture, there is perhaps no class of plants which, when kept in an active state of growth during the winter, are more benefited by the bright rays of the sun; and with regard to fog, it is curious to note, that some of those which would appear to be the most likely to suffer escape unhurt, while others of a hardier nature suffer considerably. Taking Adiantums, the beautiful

Farleyense has come through remarkably well, especially plants suspended to the roof, where they get all the light possible. They have not only retained their matured fronds well, but the new ones have developed as perfect as in summer, though, of course, they are devoid of the beautiful pink tint seen in sunny weather. A. elegans: this grows and produces perfect fronds, where the old favourite, A. cuneatum, makes only a weak attempt to grow; elegans also retains a brighter and fresher colour in the matured fronds; A. Birkenheadi is another Fern worthy of note, as resisting the baneful effects of fog. The Gymnogrammas are quite impervious to fog; this is probably owing to the fronds being covered with the powder or farina. They suffer from cold or excess of moisture; but where a good warmth is maintained, they go through the winter well.

I find it is those with a bright, smooth surface to their fronds, which suffer most. Cyrtomium falcatum, and Polystichum coriaceum, or others of similar texture, I have seen with their fronds having the appearance of having been scorched after a dense fog, while others of a more tender nature have escaped unhurt. Nephrolepis go through the bad weather well, and will continue to make good growth provided sufficient warmth can be given. Of Ferns grown for market these have come much to the front within the last three or four years. N. exaltata, that is found the most useful, and it is as a basket-plant that it is most appreciated. During the past season they were much used in London. I saw it used in several instances for hanging from balconies, and where sheltered from the wind they last a considerable time. N. philippinense is a good hardy kind, and makes a compact plant. Most of the varieties are found very useful, and when grown where they are well exposed to the light they make fronds of good substance.

Davallias of the Haresfoot type are all useful. They do not come from spores so freely as the Pterises, but with care in selecting spores good results may be obtained, and seedlings make much better plants than divisions. I have found D. fijiensis to vary much, some of the seedlings being more robust, and others dwarf and compact, with very finely-cut fronds. Dissecta, elegans, Mariesii, and others may be recommended. Of Pteris, the most useful crested variety is Wimsetti, though cretica cristata and serr. cristata compacta still remain favourites with many. Of the plain forms cretica major or Ouvrardi now holds first place; it is a splendid Fern for winter work.

Phlebodium aureum is a fine Fern for winter, and keeps the beautiful glaucous hue unless exposed to a very low temperature; but I find that after being exposed to cold the fronds go black, the damage may not be seen for some days perhaps, and though they may last for some time while kept cold, they show the effects very soon when taken into warmth again. Aspleniums of the bulbiferum type are good winter Ferns; biforme, of which there are several slight variations, is the most generally grown. *H. A.*

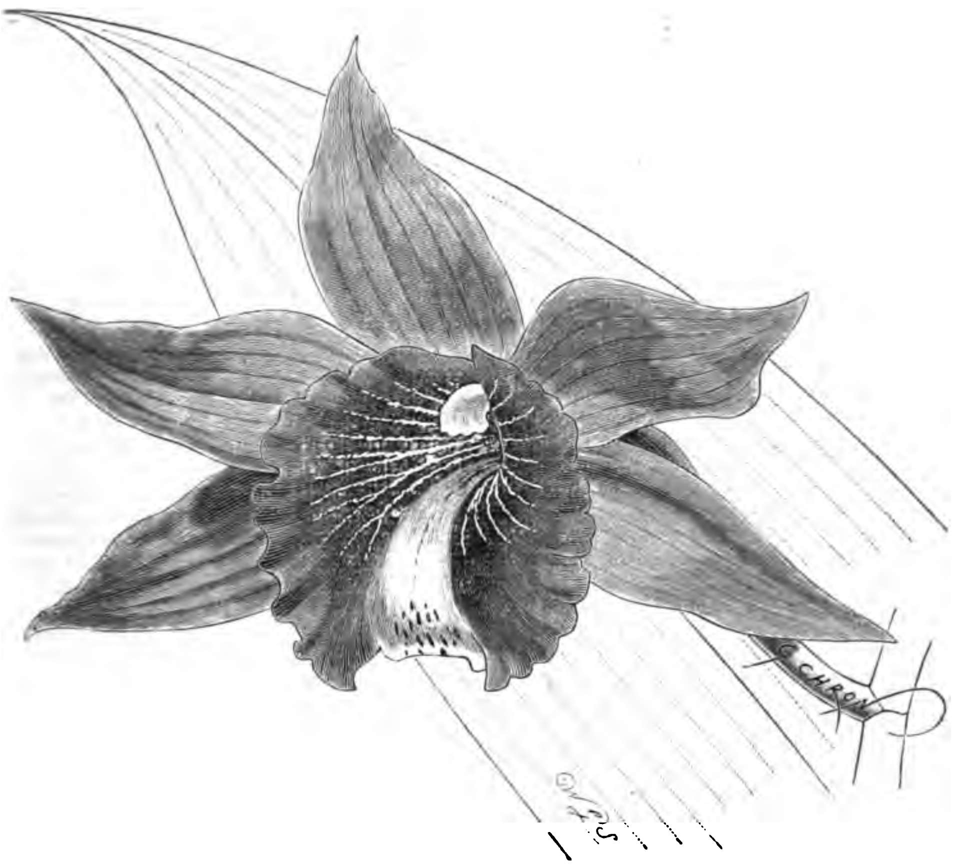

FIG. 45.—PHAIUS × : A CROSS BETWEEN P. MANNI AND P. TUBERCULOSUS.

PHAIUS ×.

When the Royal Horticultural Society met on February 14 last, Messrs. Sander & Co., St. Albans, showed a very handsome form of Phaius (fig. 45), obtained by them by crossing P. Manni with P. tuberculosus. The flower is well expanded, richly coloured, and a great addition to our winter-flowering Orchids.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM × ANDERSONIANUM, WESTONBIRT VARIETY.

Few imported Orchids vary so much as do the forms which the late Professor Reichenbach ultimately combined under O. × lanceans, a fact accounted for by their hybrid origin, and in the probability that some of them are secondary crosses, reverting in some instances towards O. gloriosum, and in others towards O. crispum. Hence it is that some of the forms in their small size, narrow segments, and other characteristics, are but little removed from O. gloriosum, and are consequently but little esteemed by orchidists; while others, in far less quantity, have the size, form, and handsome appearance of O. crispum, and, consequently, are highly prized.

A grand inflorescence of one of the largest and showiest forms I have ever seen has been forwarded me by Captain Holford, Westonbirt, Tetbury (gr., Mr. A. Chapman), where, in the time of the late Robert Stayner Holford, one of our earliest and best collections of Orchids was formed. The sepals are 3¼ inches across, and the petals which are ⅝ inch wide, 3 inches across; they are cream-white, the sepals having each a group of seven to ten red-brown spots along the middle, and the petals a similar marking of smaller spots, with the addition of three short red lines at the base. The lip is very different from that of the ordinary O. × Andersonianum in form, it being ovate and crimped at the edge, white, with one large blotch in the centre, and some red markings on each side of the upper portion, the area in front of the callus being bright yellow. The whole flower is sufficiently showy to be classed with spotted forms of O. crispum. *Jas. O'Brien.*

DENDROBIUM PIERARDI LATIFOLIUM AND D. PRIMULINUM GIGANTEUM.

I couple these two Dendrobiums together, because in many respects they are very similar, though there is sufficient diversity in the bulbs, leaves, and growth to warrant the retention of the names as they now appear. These varieties do not appear to be grown so much as used to be the case. The colours of the flowers are not so striking as those of others, some of which may be grown just as easily, but for arranging with other plants in the conservatory or show-house there are few varieties more beautiful than are these. The former can be grown with pseudo-bulbs some 3 to 4 feet long, and the latter still from 2 to 3 feet. They are best grown in baskets or on blocks; the former method is perhaps preferable, but care must be taken that the basket used be not too large. It is better to water often during the growing season than to have large quantities of mossy soil remaining wet for a lengthened period.

I know the object of most Orchid growers is to possess and continue to grow the original plant, and endeavour to increase it in bulk and general effect; but it is not always the case that increasing dimensions are correspondingly followed by greater floriferousness, or flowers of finer hue and substance. Very often a plant is retained in the original bulk, when one side will grow freely, and flowers appear numerous enough; whilst another portion is dwindling, puny, and unsatisfactory. Still, it is a large plant, and it is imagined that skill and attention are rewarded in the fact that it is kept intact and growing. Much better it would seem to be to break up the masses, and instead of seeking to have large specimens, moderately flowered, to grow medium-sized plants, full of vigorous growths, and flowering with freedom and strength.

So with these two varieties. If plants with two or three flowering bulbs, of the lengths indicated, were in baskets, and when in flower suspended among other choice plants, the effect would give satisfaction.

D. Pierardi latifolium will shortly be in flower, for if the necessary rest has been given, it will by now have been placed in the warm-house again, and numerous buds showing along a good portion of the bulbs. When in flower, endeavour to retain the blooms fresh as long as possible, for at best they will not last more than two or three weeks; and as the flowers pass away, and the growth of the new bulbs advance, seek by heat, moisture, and a fair amount of light, to obtain stout, lengthy, and plump pseudo-bulbs. Do not be afraid of keeping the plants fairly dry during the resting season, and if the leaves fall off, no harm need be feared.

D. primulinum giganteum is generally a little later in flowering than the one previously mentioned, but in all respects the cultivation needed is the same. This includes heat, moisture, and light when growing, but not direct sunshine, and occasionally syringing under stages, or watering the earth surfaces with manure-water. If at times the glass registers at shutting-up time 85°, 90° or even beyond, no harm will follow if other conditions are the proper ones. *W. Swan.*

NEW VARIETIES OF CUPRESSUS LAWSONIANA.

SINCE the introduction of Cupressus Lawsoniana from Northern California in 1853, by Murray, its usefulness in various directions has been well recognised. It is the hardiest known Cypress, even young plants of it being rarely killed in the severest winters. As a specimen tree, the size to which it will grow, coupled with its handsome appearance, are such as to commend it to the attention of every tree planter. Several beautiful specimens are to be met with in the neighbourhood of Woking, as at Byfleet, the London Necropolis Cemetery, which is largely decorated by trees of Cupressus Lawsoniana, which are of great size. Probably the largest specimens occurring in the British Isles are the two recorded at the Conifer Conference of the Royal Horticultural Society in 1892 — that growing at Dupplin, Perthshire, which in that year was 55 feet in height, with a stem-girth of 4 feet 3 inches; and another big one is to be found at Tortoisk, Argyllshire, 34 feet in height, with a stem girth of 8 feet 6 inches. The variability of this Cypress when raised from seed is very remarkable, and numerous forms are now recognised in gardens. During the past few years several which are quite distinct forms have been raised, which are likely to become valuable in gardens. Although these novelties may not be used to the same extent as the type, they will be employed sparsely in gardens. Of these varieties I may name the following: —

Triomphe de Boskoop, with foliage of a bluish shade, and of such an extent is this tint, that the variety might be fittingly named the Blue Cypress. In growth and habit it resembles the type, being as vigorous and free of growth. Owing to its remarkable colour and fast growth, it is likely to become a popular subject for garden planting. Its name indicates Dutch origin.

Var. filifera glauca is an equally valuable but very distinct variety, of robust growth and pendulous habit, resembling in this respect C. L filifera. The deep blue colour of its foliage is very decided, and the gracefulness of the thread-like branches is an additional charm. Having been introduced about two years since, only small trees are obtainable at nurseries. It originated in Messrs. K. Wezelenburg & Sons' nurseries in Holland.

Var. Wisseli, a distinct-looking form, which cannot be praised too much. Its growth is strong and compact, and the habit stoutly columnar. It has also foliage of a blue tint, but a distinct habit of growth is its chief point.

Var. erecta viridis filiformis, a form that partakes more or less of the style of C. L. erecta viridis, but differing in having thread-like growth of branches, although its colour is exactly the same, namely, light green. The growth is vigorous. *E. S., Woking.*

MARKET GARDENING IN THE CHANNEL ISLES: JERSEY.

(Continued from p. 67.)

VARIOUS NURSERIES, &c. - One day I was privileged to accompany a leading grower on a business journey; we covered a good distance, inspecting and noting the fruit as it appeared in many of the fruit-growers' gardens and farms. Upon entering the Imperial Nurseries, those that were held so long by Mr. C. B. Saunders, and yet more recently by Mr. H. Becker, we noticed many fine fruit-trees in full bearing. There were choice fruits of Louise Bonne of Jersey, Van Mons Léon le Clerc, Beurré Bachelier, very fine; Williams' Bon Chrétien, Brockworth Park, Beurré de l'Assomption, 1 lb. each; Beurré d'Amaulis. Here, too, were excellent fruits of André Despartes, a grand October Pear, of large size, excellent flavour, a heavy and certain cropper; General Todtleben, Beurré d'Anjou, very large trees, in wonderful bearing; Napoleon III., an early Pear, of large size, very free in setting, sweet and delicious in flavour; Beurré d'Arenberg, Beurré Sterckman, fine tree, with large and well shaped fruit; Jules d'Airolles, a late Pear, delicious in flavour, in many respects resembling a Marie Louise. I noticed here, under some of the trees, numerous empty flower-pots, of about 6-inch size, plunged in the ground almost the whole of their depth. On enquiry, I was informed that the manure-water is poured into these, and passes directly downwards to the roots. We then visited the Cæsarian Nurseries, where we gathered some very fine Apples and Pears; and thence to the fruit farm of Mr. De Guelle, Grouville, where there were grand Apples, some Peasgood's Nonsuch weighing 27 oz. From this garden fruits weighing no less than 34 oz. of this variety have been gathered from espalier trees. Bismarck on espaliers were very large, and of a brilliant colour; Gloria Mundi were immense fruit gathered from a wall. This is rather tender flesh, still here it is a very free bearer. Beauty of Kent, Calville rouge d'Anjou, very fine Apple; Cornish Gilliflower, fruit of unusual size; and Monstreuse Incomparable, fruit of large dimensions, weighing 24 and 26 oz. Another very fine sort was Belle de Cholet. Here we saw a very fine Plum named Jersey Lily growing on a wall. The tree was very vigorous, the fruit was yellow, with bright rosy spots, and a purplish bloom showed over all. The fruits were of large size, measuring 4 inches in length. Some of these had weighed just a quarter of a pound apiece.

In the houses was a fine lot of Tomatos, the variety grown being Chemin Rouge, of which the grower speaks very highly.

At another farm we admired the woodrous fertility of the many large pyramidal Pear-trees. The Pears were of splendid size, and as the gathering was taking place we noticed with much pleasure the care with which each was handled. Most of the trees were literally loaded with fruit; the Williams' Bon Chrétien were being despatched as quickly as possible. These fruits were splendid in size, and delicious in flavour. Doyenné du Comice had fruits exceptionally fine, since some had just been gathered weighing 27 oz. Of Beurré Bachelier fruit had been gathered weighing 40 oz. The proprietor had on a previous season exhibited twenty-five fruits of this latter variety which averaged 1½ lb. in weight. The space devoted to these fruit-trees is considerable, but one could not also held noticing the number of trees on any given spot, the healthy condition, and the heavy crop every tree was bearing. Here, too, were Apples of large size, and trees bearing heavy crops.

Many excellent things were seen on this day's journeyings that impressed me very much with the woodrous fertility of the soil, the healthy condition of the trees, the freedom from blight and scale, the large crops most of the trees were bearing, the beauty and fitness of the climatic conditions; and, perhaps more than all, the steady and persistent labour expended on all connected with fruit-culture. May the success already achieved by so many be trebled in the future.

PRIVATE GARDEN.

The Firs, Cobo.—I was privileged to visit this garden in company with Mr. Simpson, the gardener. The park and pleasure-grounds are of considerable extent, and the fine trees and clumps of Bamboos formed a picture that will not be easily effaced from my memory. It was not as single plants or solitary clusters that Bamboos came into view, but as veritable groves and plantations. Arundinaria viride-glaucescens, B. Metake, and B. Quilloi, were of unusual dimensions; in some cases many stems of 20 feet in height were noticed, and exceedingly graceful withal; and so dense and impenetrable the thickets, that in many places it was impossible to enter them. Arundinaria aurea and A. nigra were equally fine and tall, and stout in the stems.

Standing in the park, there were remarked a Japanese temple and a dwelling-house, the approach to the temple being led over flat stones laid on the grass, and then up several flights of steps, ascending to the centre of the building. The dwelling-house is an object of great interest, and affords a good idea of the ordinary Japanese country-dwelling. The park, as has been said, is extensive.

In the gardens near the owner's house were more large Bamboos, several Cordyline indivisa, Melianthus major, quite tall, and not as we in England are accustomed to see this plant; Edwardsia, Sophora japonica, with its finely-cut foliage, flowers very freely; Phormiums in variety; Chamærops, Aralias, Magnolias, as immense trees; Abutilons, Plumbago capensis, Ipomœa Learii, Lapageria rosea, and large standard Figs, everything luxuriantly growing. To have such surroundings to a large flower-garden (which itself was gay with bright and showy subjects), and to see them repeated in specimens, 8, 10, and 12 feet high, with Camellias and Azalea indica as common shrubs, and a number of plants usually considered in England as inmates of the intermediate or cool greenhouses, was a great source of delight as well as a surprise.

The kitchen-garden, of fair size, contained good crops of most sorts of vegetables, and standards and pyramids of Apples and Pears, which were splendid objects, bearing in most instances large crops of fine-looking fruit. In a low-roofed vinery black Alicante Grapes hung in splendid profusion and condition, the bunches unusually large and of symmetrical proportions, many turning the scale at 3 lb. each, with berries of an intense black. It was a pleasure to note many beds and borders filled with annuals that were bright-looking, and as a whole very effective; and being placed in the kitchen garden, they gave colour and brightness where these are usually lacking. A long bank of Hydrangea Hortensia in flower under the shade of some tall, deciduous trees, was a pretty feature. Whether it was the soil, the shade, or proximity to the sea, the flowers were of a blue tint, without, as far as could be seen, a single truss of the usual pink colour. The effect by the failing evening light haze was remarkable. *W. Swan, Exmouth.*

THE ROSARY.

PRUNING ROSES.

As the present month draws to its close, the thoughts of the Rose-grower will be fixed on the pruning of his stock of plants. Twenty years ago it was the practice to get all of the hybrid perpetuals, Bourbons, and Gallicas pruned by the end of this month, and the Teas and Noisettes a month later; but experience has shown that this is too early, if we are to avoid, as far as possible, the lamentable effects that follow hard frosts, if these fall late in the spring, which have been so common the past few years, I have no hesitation in saying that quite half of our Roses are pruned too early, even now.

Then, again, so few of our amateur friends seem to realise why we prune Roses and other flowering shrubs, and so they go on what I may, perhaps, style a rule-of-thumb system, and prune each Rose, no matter the variety or class to which it belongs, upon the same lines. Such methods cannot result in good effect, and it would be almost as well if the knife were kept from the plants entirely.

We prune Roses with the sole object of diverting the energy of the plants into the more useful wood, and it is obvious that this is not the same in all of the several classes of Roses, to say nothing of the widely differing characteristics of varieties in any given class. Let me take as an example the extremes from a few of the principal classes, in which the varieties first named are of exceptional vigour, while the second example is of very moderate growth. Hybrid perpetuals, Madame Gabrielle Luizet and Horace Vernet; Teas and Noisettes, Rêve d'Or and Ma Capucine; Bourbons, Mrs. Paul and Souvenir de la Malmaison; Polyanthas, Crimson Rambler and Perle d'Or; Hybrid Teas, Gloire Lyonnaise and Lady Mary Fitzwilliam; and many more such instances might be given.

There is only one rule that can be followed with any degree of safety: and that is, to leave as many as possible of the healthy long shoots of the previous year upon the very vigorous growers; and limit the number of buds upon those of medium or weak growth, according to the strength of the variety. In all cases, weakly and immatured wood can be removed to advantage; also any that is the least affected by frost, cutting back to a thoroughly sound eye.

A little observation will show that all of our Roses and Briars depend to a very great extent upon new growths from their base for a continuance of vigorous health. As time goes on, the uppermost shoots become exhausted, and gradually decay. Now these shoots cannot be of much use in future, and especially in the case of climbing and extremely vigorous varieties; therefore an experienced pruner will remove them as soon as deterioration is remarked, which enables the younger and more healthy growth to find space and advance. These points, and the cutting-back to well-matured eyes, are the essential matters in pruning Roses; and if they are borne in mind, and the knifeman takes counsel of common-sense, few pruners will go wrong.

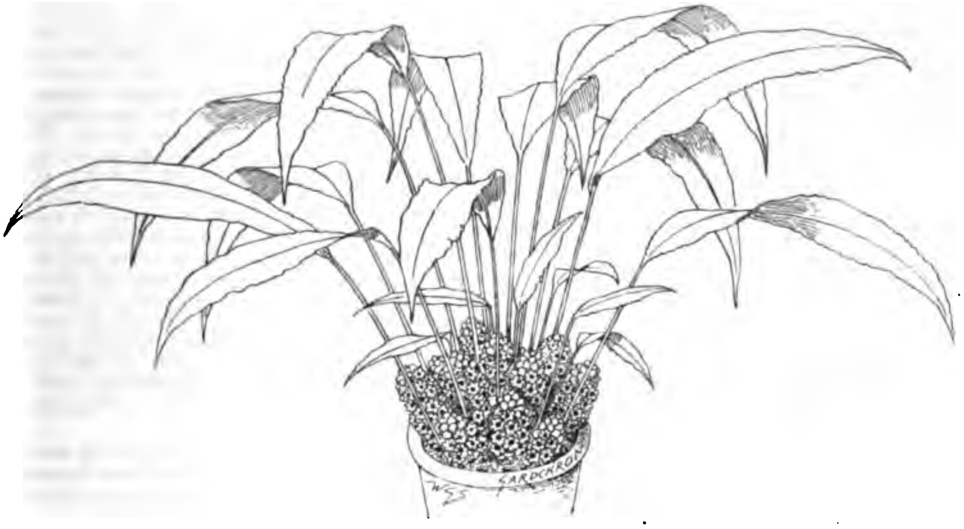
Fig. 46.—Lourya campanulata.

To give full instructions would occupy too much space, seeing that the characteristics of numerous varieties would need to be noted. He must also bear in mind that Roses are or should be grown for the embellishment of the garden, and he should leave far more of the ripe wood than if the object be the growing of a few blooms of high quality for exhibition. Among vigorous-growing Roses, few produce blooms upon their longer shoots in the current season—these come the following year; and nearly every well-matured eye will produce lateral growths, which seldom fail to carry good blossoms. *A. Piper.*

LOURYA CAMPANULATA.

This is a Cochin-China plant, described by the late Prof. Baillon.* It was exhibited at the last meeting of the Royal Hort. Soc., and as will be seen (figs. 46, 47), has much of the general appearance of an Aspidistra, but the inflorescence is more elongated. The perianth resembles that of the Lily of the Valley, but has a purple blotch at the base. The structure of the flower, as described by Baillon, is very curious, and shows that the plant must be placed among the Peliosantheæ, near to Ophiopogon. The dense raceme of flowers is followed by a cluster of bright blue berries, each oblong, ovate, about 1 inch in length, by ¾ inch in breadth. While the plant will serve the same purposes as the Aspidistra, it will be seen that the flowers, and especially the fruit, render it still more attractive.

ALPINE GARDEN.

NEW AND RARE PLANTS FOR ALPINE GARDENS AND ROCKERIES.

(Continued from p. 100.)

Ranunculus Sommieri, N. Alboff (in *Bulletin de l'herbier Boissier*, vol. i., p. 245), was found by Alboff in the mountains of Abchasia in 1892. A well-tufted plant, with rather large and heavy leaves cut into three, and large yellow (bright yellow) flowers. It requires sun and a well-dressed soil in the rockery, and flowers from May till July.

Rudbeckia maxima, Nuttall, from North America, is one of the best but rarest of herbaceous plants. The foliage is smooth, glaucous, and leathery; the flowers are very large, and of a bright yellow colour. The true R. maxima is the one most to be recommended of the herbaceous perennials; it is very hardy, but is rare in gardens. It grows over 6 feet high, and requires a good deep soil.

Rudbeckia purpurea nana.—We found, three years ago, in a bed of Rudbeckia purpurea, in our nursery, near Lancy, a very dwarf plant of this, covered with large flowers of the deepest carmine-red. The seeds of it retained the character of the variation, so that it may be considered as a variety of the type.

Salvia ringens, Sibthorp and Smith.—This is a very showy and good plant from Greece, growing in the mountains between 3500 and 4000 feet altitude. The stems exceed 2 feet in height, and bear large, ashy-grey-green three-lobate leaves, and very large, sky-blue, beautiful flowers, which are, if not so bright and showy as those of the Salvia patens, the best of all the perennial kinds. The plant is a very good and useful addition to garden plants, especially for rockeries and sunny and dry places.

Samolus repens, Persoon, from New Zealand, is a very small, low-growing plant, which has no analogy with the European kinds of Samolus. The stems are creeping, lying on the soil, and the leaves, small, of a dark and brownish-green, are generally joined in small rosettes, from which start other stems, just as in the Saxifraga sarmentosa or Androsace sarmentosa. The flowers are white, of middle-size, and very numerous. It requires a damp, but partly sunny situation in the rockery.

Sanicula marylandica, Linnæus, has a pretty foliage, and is quite different from our European species; it is worth cultivation as one of the best kinds for woods and shady places.

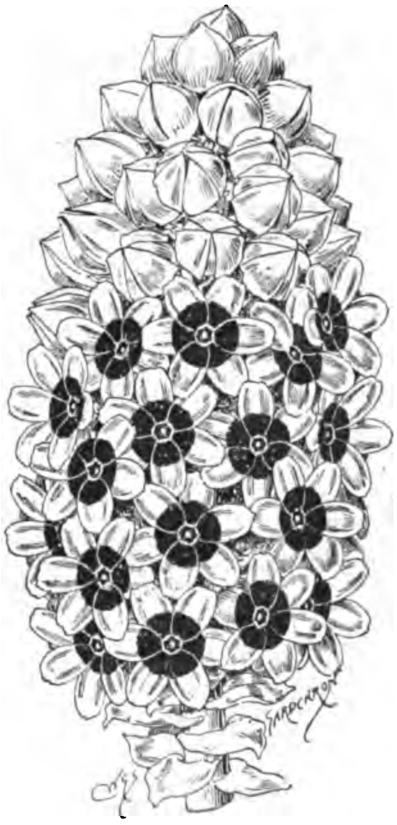
Fig. 47.—Lourya campanulata.

Showing inflorescence. (Real size.)

Saponaria glutinosa, Marschall v. Bieberstein, from Oriental and Mediterranean regions, is a plant, of which the bright carmine-red flowers form a good decoration for rockeries, where they open from July to September.

Saponaria pulvinaris, Boissier.—From the highest regions of the Anatolian mountains and Lebanon, is the Silene acaulis of that country, and at first it might be mistaken for it. Very dwarf, very cæspitose, the plant is good for the rockery; the leaves are small and numerous, joined in rosettes like those of the Saxatile alpine plants; the flowers are very shortly stalked, and the corolla is of the deepest carmine-colour. It flowers in May and June, and requires a dry and sunny situation in the crevices of the rockwork.

Saxifraga corbariensis, Timbal, from the Pyrenees (Mount Corbière, &c.), is very pretty, and quite distinct from S. geranioides, to which it is attached by some authors. The leaves are round in form, three-lobate, and the lobes have three to five very obtuse teeth. The back of the leaves is pubescent, glandular, and marked with small protuberances. The flowers are large and white. It is rather a delicate kind, and needs a sunny and dry place, and a crevice of the rockery.

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* *Bull. Soc. Linn.*, Paris, No. 93, p. 743; Carrière in *Revue Horticole*, 1889, p. 129; and D. Bois, in *Revue Horticole*, 1894, p. 84, c. ic. col.

Saxifraga cuneata, Willdenow, was discovered by Boissier in the rocks of the mountains in Pamplona (Navarre), and on the Peña Redonda by Reuter in Old Castile. It is the most distinct and rarest of all the Saxifrages of the Dactyloides group, and is very seldom seen in gardens. I believe that the garden of M. Boissier, at Valleyres-sous-Rances, in the Canton de Vaud, is one in which it grew many years ago. M. Barbey Boissier was kind enough to give it to us, so that we could distribute it. The plant is a large and very showy one, growing in bushes, and forming tall cushions of dark-green, coriaceous, thick leaves, viscid beneath, and trilobate. The flowers are white and three-nerved, but not very numerous. It is a curious and interesting plant, which prefers to be in a crevice exposed to the sun, or grown on in an old wall. *H. Correvon, Jardin Alpin d'Acclimatation, Geneva, Switzerland.*

MARKET GARDENING.

HORSERADISH.

Good Horseradish always commands a ready and remunerative sale, the current wholesale price being from 2*s.* to 2*s.* 6*d.* per dozen sticks. At these prices, one acre of well-cultivated ground planted with Horseradish in rows 1 foot apart, and at 6 inches from plant to plant in the row, would give gross returns of £726 and £907 10*s.* respectively two years from the time of planting, thus leaving a good balance on the right side after cost of manure, double ploughing of the land, and rent of same, plants, planting, and marketing, had been deducted. A light, deep, fertile soil is suitable to the growth of Horseradish of such a description as would, if only produced in sufficient quantity to meet the demand, render foreign-grown stuff unsaleable in English markets. The ground should be double ploughed in order to loosen it to the required depth, a good coating of well-decomposed manure having been previously laid, afterwards harrowing, in order to produce a fairly level surface preparatory to planting. Stretch a line in the direction in which the rows are desired to run—say north and south—the entire length or breadth, as the case may be, of the ground to be planted, commencing at the outside as a matter of course, and with a light crowbar make holes at 6 inches asunder in the row for the reception of the individual roots. These should consist of straight, thin pieces from 9 to 12 inches long, and prior to being planted, these should be drawn through a coarse piece of cloth held in the closed hand, so as to rub off any eyes or buds, which would otherwise push into growth from the sides of the main roots, thereby detracting from the size of the latter. Place one root (small end downwards) in each of the individual holes, drawing a little soil into the holes with the hand at the same time, until the row is finished, afterwards repeating the above-mentioned operations until the planting of the piece is completed. The last week in January and during February is a good period for planting, weather permitting.

The Dutch-hoe should be run between the rows of plants a few times during the interval elapsing between March and September, stirring the soil to the depth of 1 or 2 inches, as much with a view to accelerating growth in the Horseradish as in destroying weeds. *H. W. Ward, Rayleigh, January* 21.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener, Dropmore, Maidenhead.

Nuts.—The female flowers are now opening their blossoms, and as some of the bushes may be deficient in male catkins, a few well-loaded branches from wild or cultivated bushes, should be tied up in the bushes where pollination is likely to be deficient; the pollen from which will, on fine days, when shaken by hand or by the wind, be dispersed in clouds over the bushes. If any pruning remains to be done, it should be finished off forthwith. Young bushes should have the main-shoots shortened one-half or one-third of their length; the other pruning will consist of the removal of shoots from the centre of the bushes, and cutting back over-strong shoots in order to obtain laterals and removal of suckers.

Cordon-trained Currants and Gooseberries.—Where clean fruits of White and Red Currants, and also Gooseberries for dessert are desired, any spare spaces on walls or fences may be planted with these fruits, training them vertically with two or three branches. These fruits are very useful in providing late fruits when planted on a north aspect.

Pruning and Training Newly-Planted Trees.—The necessary pruning of trees planted in autumn or winter, should now be done. If it be left for another year, a season's growth will be lost to the formation of the head of the tree. This applies especially to standard trees of Apples and Pears, and in a lesser degree to bush or wall-trees. In the case of the former, the shoots should be cut back to a good bud pointing in the direction it is desired the growth shall take, and these will form the foundation for the future head of the tree. Where the shoots are left too long on newly-planted trees, they seldom start away with vigour, making little headway for years. Pyramid and bush-trees should have the leading growth shortened to four or five buds, or to about a third of their length where fairly strong, and the weaker side-shoots to within one bud of the previous year's growth. Espaliers or wall-trained trees of Apples or Pears should have the central leading shoot shortened to about 12 ins., or one bud above where it is desired the next tier of branches shall be placed. Other leading shoots must be shortened to three or four buds, and the remaining ones cut close to one bud. Wall-trees and others, if planted early, will have settled sufficiently in their positions to allow of nailing or tying being done, but it should be done somewhat loosely, in case any slight further depression may ensue. If a mulching of half-rotten littery manure has not already been given the trees, this should be applied.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Cypripedium insigne.—This species having been at rest since it flowered, may now be afforded a clean or a new pot. It would serve no good purpose to enumerate varieties, as the same treatment serves for C. i. Sanderæ as for the commoner varieties, therefore C. insigne includes each and every form of this especially attractive species. The pots should be rather more than half filled with drainage, and the following ingredients as compost should be used, viz., peat two parts, fibrous loam one part, and moss one part, sprinkling in a fair amount of finely-broken crocks when re-potting. Do not put the whole of the ball in just as it comes out of the old pot, but pick out the crocks, and as much of the old soil as possible, so that the greater proportion may be fresh and new for the plant to get re-established in. C. insigne should occupy a cool, moist, and somewhat airy structure, similar in character to an Odontoglossum-house, but with a few degrees higher temperature. After being re-potted, afford water through a fine rose, and until the plant has got established apply as much as will keep the material merely moist. These remarks are equally applicable to C. villosum, C. Boxalli, C. purpuratum, C. Charlesworthi, C. Leeanum, C. Arthurianum, and many other related hybrids.

Temperature and Shade.—The increasing warmth of the sun will induce more genial, and indeed call for more genial, conditions in the warm-houses, and to this end the hygrometric state of the air should be more on a par with the temperature than heretofore, the latter being permitted to advance gently with the season. On bright days, those plants which have thin leaves will need protection from the sun by means of sheets of tissue-paper, until the proper blinds be brought into use.

The Potting of Thunias.—These plants, being in a fit condition to be re-potted, should be shaken out of the pots, and be divested of the worn-out soil and dead roots, and re-planted in a compost consisting of one part fibry loam, one part orchid peat, and a third part of sharp sand, powdery cow-dung, and sphagnum-moss, finely-broken crocks being incorporated therewith in the process of re-potting. Pots should be used large enough to accommodate one, three, or more plants, according to fancy, and these should be about half-filled with crocks. Let a stake be placed in the pots when the crocks are put in, and to this tie the bulbous-stems. A sufficient number of the old roots should be left on the pieces as will enable the potter to fix the stems in the compost, covering them and the base of the new break with the mixture, which, when finished, should be about ¼ an inch below the rim of the pot. When potted, place them altogether in a light position near the roof-glass in the east Indian-house, and syringe them in fine weather, but afford no more water for some considerable length of time. T. Bensoniæ does not show signs of activity so early as the other species, and should therefore be held over until ready for repotting.

Mossing the Aërides, Angræcums, Saccolabiums, Vandas, &c.—Some members of these genera will now require to have the decayed sphagnum-moss and drainage-material replaced with new, a beginning being made with plants whose roots are beginning to grow anew. The smaller-growing species, usually accommodated in baskets or pans, require nothing more than a few crocks as drainage, and to be surfaced with living sphagnum-moss; but the plants grown in perforated pots and other large vessels should have the sphagnum-moss and larger crocks mixed together, always placing the crocks perpendicularly, and finishing off the surface with sphagnum-moss alone for appearance sake. Aërides crassifolium, Fieldingi, crispum, odoratum, and japonicum thrive in the Cattleya-house, and A. vandarum in the cool-house. Angræcums, excepting A. falcatum, which is an intermediate house subject, require the warmth of the East Indian-house, as do also the majority of the Saccolabiums and Vandas, excepting those of the tricolor section, which require more air and less heat than is possible to give them in that house. Vanda cœrulea will not as yet require attention in the matter of surfacing or repotting, it being still at rest in a cool airy house. Those plants which rest on a large body of sphagnum-moss must be watered very cautiously for some considerable time yet, or the sphagnum-moss, and probably the roots, may decay. In all cases let the surface of the sphagnum be sprinkled sufficiently often to prevent it becoming quite dry, and on sunny days let the pots be carefully sprayed with the syringe, being careful not to allow water to accumulate in the axils of the leaves. In the case of Vandas teres, Hookeriana, and the hybrid, Miss Agnes Joachim, this precaution is unnecessary.

Epidendrum vitellinum.—Plants growing near the roof ventilators in a cool-house are now beginning to make new roots, and any that require new rooting materials should have them forthwith. The most suitable are peat and sphagnum-moss in equal proportions. The amount of water may be increased afterwards.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

The Early Peach-house.—The wholesale removal of superfluous shoots being injurious to the trees, the disbudding should receive almost daily attention, gradual removal causing no check to growth of shoots or of fruits. In young and vigorous trees excessive disbudding should be avoided, especially if the fruit-crop is a light one, it tending to over-grossness in the shoots. When disbudding is carried out leisurely it is an easy matter to study the requirements of the tree, and to select the best bearing shoots of the next year. Peach-trees, when forced at an early part of the year do not always break uniformly, especially such as are planted on back walls of lean-to houses, the lower parts of a tree being some few days in advance of the upper parts. When this occurs, disbudding is facilitated if the growths are left on the upper of the branches, instead of on both sides, always leaving a shoot to extend from the point, or immediately beyond the fruits. In a long fruiting branch, an additional one may be retained, which, if not required for fruiting, or if no space be found for it, may be kept pinched short, that is furnished with about three leaves. By so doing, the flow of sap is equalised, and the tree well furnished with foliage and shoots. The thinning of the crop of fruit must proceed along with, or follow closely upon the disbudding. The best-placed fruits should always be left for the crop, that is, those which will obtain the most sunshine, and which can develop properly without being squeezed out of shape by contact with the wire trellis, &c. Do not thin them too severely all at once, as some fruits may not be perfectly set, and they will fall. When a fruit has reached hazel-nut size, it is easy to determine which are surely set, and thinning may safely be then brought to a finish. Green-fly should be destroyed by fumigation as soon as detected on the trees. Afford tepid water in sufficient quantity to reach to the bottom of the border, when an examination shows it is needed. Old-established trees may be afforded liquid-manure, but young trees in good growth are the better if supplied with water. Ventilation should be amply yet carefully applied on bright days, a slight increase in temperature being allowed weekly. Syringing, too, may be resumed on trees that have passed out of flower, carrying it out once or twice daily in accordance with the weather.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Gloxinias.—A good batch of the tubers should now be started, choosing those which afford an indication of a renewal of growth, and leaving the dormant ones for succession, if such be required. Let the whole of the old soil be shaken from the tubers, then place them in small clean or new pots that will just hold them, covering the tubers with a compost consisting of two parts sandy loam, one part each of peat and leaf-soil, with a liberal allowance of silver-sand, and place them in a house where the temperature is kept at about 60°, affording water very sparingly until signs of active growth are apparent; otherwise rotting of the tubers may occur. When the roots have reached the sides of the pots, let the plants be transferred to the pots in which they will be flowered, which may be 5 inches to 8 inches in diameter, in accordance with the size of the tubers.

Achimenes, Tydæas, Weigelas.—A portion of the stock of each of these plants may now be started, likewise a number of summer-flowering Gesneras. The Achimenes should be turned out of the pots and pans in which they have been wintered, and the tubers laid on light soil, in well-drained pans, about an inch apart. The pans should have been filled to within an inch of the rim with loam, peat, and leaf-soil in equal proportions, and a good deal of sharp sand; and the tubers should be covered with soil to the depth of 1 inch. Place the pans in the stove, and afford water very sparingly until growth has begun; and when the shoots are 2 inches high, lift each with a little ball of soil attached, and pot them to the number of six to eight in 5-inch pots. They may go into broad, deep pans, or into wire-baskets, or earthenware hanging receptacles. Tydæas, Nægelias, and summer-flowering Gesneras may be started in the same manner, but in potting-up it will not be necessary to place many plants in a pot, three or four being sufficient in the case of the first two, whilst Gesneras are best when potted singly.

Zonal Pelargoniums.—Where fine plants are required for autumn and winter blooming, cuttings of the varieties should be inserted in well-drained 4 or 5-inch pots, filled with sandy-soil, eight to ten cuttings being placed in a pot, affording water sparingly till it is seen that the cuttings are making roots. When well rooted pot them singly in small pots.

Dracænas and Codiæums.—When these plants become "leggy," or when an increase of the stock of plants is desired, the tops of the stems and leading-shoots may be made into cuttings, inserting these in small, yet deep pots, filled with loam, peat, and sand in equal proportions, plunging the pots in a propagating-case or hotbed-frame. These plants may also be propagated by ringing, that is, taking off circles of bark 1 inch wide from the stem or shoot, about 5 inches below the top, removing all leaves standing in the way; then fasten some wood-moss round the shoot at this point, and sprinkle it daily. When roots appear through the moss the shoot is ready for removal, and it may then be potted in a light mixture of loam, peat, leaf-soil, and sand; and, if possible, the pots should be plunged in a mild hot-bed, affording water carefully, shifting the plants when well rooted into larger pots. Before full establishment in the pots has taken place, shading from strong sunshine will be required by both, but afterwards the Codiæums should be gradually accustomed to bear full sunshine, accompanied with much aërial humidity, only this sort of treatment bringing out the colours of the leaves fully.

Cannas.—The beautiful varieties of Canna indica which have been introduced of late years are excellent subjects for the greenhouse and conservatory, and if the plants are started in batches, a succession of flowers may be obtained for a considerable portion of the year. Old plants may be divided into pieces consisting of one or more crowns, and placed in pots large enough to admit of a little soil being placed around the roots. A suitable compost for this potting is loam, leaf-soil and sand. The pots may then be plunged in a mild hot-bed, or may be placed in a house where the temperature does not fall below 55°. If the potting-soil is in a sufficiently moist condition, very little water will be required at first. As soon as the roots take possession of the soil, the plants should be shifted into their flowering pots, using the same kind of soil as before, with the addition of one part decayed manure.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Herbaceous Borders.—The present, if not the best time to lift, part plant and replant herbaceous plants is the next best season. A border may be replanted throughout, having first lifted every plant and trenched the ground, or the work may be carried out piecemeal fashion. In the case of a partial renovation, if the border was properly drained, trenched, and manured when planted, little will be required besides lifting, parting, and selecting those portions of the plants to be removed that are found at the outsides of the clumps. When replanting anything, fresh soil or manure should be added, according to the needs of each plant. When planting it is best, I think, to arrange them in groups of three triangularly, these, when in flower, forming effective masses. A good selection of species and varieties will keep up a continuous display of flowers from early spring till late in the autumn, and any good nursery list will indicate the best to plant. Where bulbs are largely planted, the bare places left after the foliage dies down can be covered by planting in proximity such creeping plants as Tropæolums, Verbenas, Lysimachia Nummularia and others, Gazanias, &c. Spaces should be left between the clumps for such annuals as Sweet Peas, Zinnias, Scabious, Stocks, Salpiglossis, Sweet Sultan, Helichrysum, Linum, Shirley and Iceland Poppies, Clarkias, Calliopsis, Godetias, Lavatera, Marigolds, Nicotiana, Clarkias, Amaranthus, Convolvulus, Tagetes, Dahlias (single, Pompon, and Cactus), Lobelia cardinalis, Mignonette, &c.

Lawns.—All grassed areas should be swept and rolled. Banks and other parts of the garden which the drought of last season may have rendered bare, should have a top-dressing of fine sifted soil, soot, wood-ashes, and leaf-mould scattered over the surface evenly about half-an-inch in thickness, brushing the dressing into the turf with a birch-broom. All stones left on the grass by the sides of walks should be picked up or swept off previous to using the mowing-machine, and all uneven edges of verges well rolled and afterwards lined out anew and cut true. Push on with turfing work so as to complete it this month.

Cannas.—The resting roots should be cleaned, placed in trays where slight bottom-heat can be afforded them, and a top-heat of 55°; the rhizomes being covered with leaf-mould, and water afforded to settle the soil. They should not be wetted overhead till growth has begun. Those kept in pots through the winter are throwing up shoots, and these may be parted and potted; should the need be to increase them, or if larger plants are required, the soil may be shaken from the roots, the latter repotted in loam, dry cow-manure, and sand, affording the pots plenty of drainage materials. Let the pots stand on a bed of coal-ashes, and afford a day-temperature of 60°.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Potatos in Hotbeds and Pots.—As the plants approach the stage when moulding will be called for, let the soil be tested, and if found lacking in moisture afford the bed tepid clear water pretty freely, afterwards moulding up the plants with soil of the same temperature as the bed. In doing this work, let the lights remain on the frames as much as possible, or at the most removing but one of them, unless the weather is mild. Air in quantities more or less should be admitted at all times in bright fine weather, either by tilting-up the front, back, or side of the lights, according to the direction from which the wind comes. Another lot of frames may be planted, without bottom-heat this time, the variety being Ashleaf, or one of that type; and at the same time, on a warm, sheltered border, some tubers of this or other early variety may be planted.

Carrots.—On hotbeds, when the plants are large enough to be handled, thin them out to 2 inches or rather less distance apart; leaving the Early Shorthorn type somewhat thickly, and thinning again when the roots are large enough for consumption. After thinning any crop, afford the bed a gentle watering as soon as the work is finished. Let air be afforded in increasing volume as the season advances, and apply thick coverings at night, in order to prevent a check being given, removing this as soon as the sun reaches the frames.

Lettuce.—Plants raised in pans or boxes in heat should be transplanted into either frames or cutting-boxes, doing this before they get drawn, and grow them freely, but do not render the plants tender by a close and warm treatment. Plants wintered in the open or in cold frames should be thinned, transplanting the thinnings, which should be carefully lifted, on to a rather firm, rich, warm border. In the open a plot of ground should be set apart, and prepared for the summer supply, seed being sown at intervals of a fortnight in shallow drills, where the plants will remain after thinning them. Plants are less liable to suffer in dry weather if not transplanted, and the heads are larger and better. The distance apart at which to leave a crop of Cos or Cabbage varieties may be 10 to 12 inches.

Rhubarb in the open being now on the move, may be sprinkled over with a little litter or other protecting material. New beds may be prepared and planted, breaking up the old roots, and using for the purpose those pieces which have strong bud or buds. The beds should be made on deep, well-dunged soil in a spot convenient for forcing, if that method be practised.

Jerusalem Artichokes.—If these roots be not dug up, no time should be lost in lifting them. Select the largest and best-shaped tubers for consumption, putting them in a cool spot, whilst those of middling size may be put aside for planting. When the soil is sufficiently dry as to be workable, plant these sets at 2½ feet between the lines, and 1 foot apart in the rows; although these, as a rule, are lifted and planted on the same ground, and produce heavy crops for several years, a change of sets and of ground should not be overlooked.

THE APIARY.

By Expert.

Condition of Stock.—There will be opportunities during the present month for the examination of all stocks in which there is the least suspicion of scarcity of food, and after a season such as that of 1898, ordinary calculations as to the amount of stores may be readily upset. The examination need be little more than a cursory glance at the upper portion of the combs to see if there be sealed food in them, and it should, if possible, be done only on such days as the bees are flying, so that if a more thorough overhaul of any stock is found to be immediately necessary, as mischief may follow. When food is found to be short, a good-sized cake of soft candy warmed and pressed into a flattish cone shape, so as to lay on the top of frames directly over the cluster of bees, should be afforded forthwith, and the quilts made to fit comfortably down over it. My plan is to use four slips of wood, one of which we lay along each edge of the quilts, and weighted down with a piece of stone or something heavy. I usually advise no interference with bees at this season, but the present season is exceptional, and the condition of stores in every stock should be ascertained. It is well also to give an occasional look at the "packings" to see that all is dry. If any of the quilts or coverings have become wet and mouldy, clean warm ones should be substituted. I would warn anyone against stimulative feeding, for the quieter the bees remain the better. Instead of removing any of the wraps or packings considered so necessary in winter, we would rather add to them.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	Feb. 25—	Royal Botanic Society, Meeting.
TUESDAY,	Feb. 28	Royal Horticultural Society's Committees.
THURSDAY,	March 2—	Linnean Society, Meeting.

SALES.

MONDAY,	Feb. 27	Roses, Climbers, Iris, Montbretias, Gloxinias, &c., at Protheroe & Morris' Rooms.
TUESDAY,	Feb. 28	Hardy Border Plants, Lily of the Valley, Carnations, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	Mar. 1	Japanese and English-grown Lilies, Palm Seeds, Continental Plants, Tuberoses, &c., at Protheroe & Morris' Rooms.
FRIDAY,	Mar. 3	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period February 12-18, 1899. Height above sea-level 24 feet.

1899. FEBRUARY.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	At 9 A.M. Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 12	W.S.W.	45·1	42·1	51·3	42·6	0·14	45·6	44·8	44·6	36·8
Mon. 13	W.S.W.	50·8	46·7	52·7	44·5	0·10	45·2	44·8	44·8	36·9
Tues. 14	S.S.W.	46·8	44·8	50·9	42·9	0·02	44·5	45·1	45·1	34·8
Wed. 15	S.S.W.	47·6	45·7	49·6	40·5	0·22	44·8	45·1	45·2	30·5
Thu. 16	W.S.W.	42·9	41·5	50·2	38·6		44·8	45·2	45·5	33·0
Fri. 17	S.E.	40·2	41·9	50·1	35·7		42·5	45·1	45·6	27·2
Sat. 18	E.S.E.	40·1	39·9	55·9	37·0		42·1	44·5	45·6	28·2
Means...	...	45·9	44·2	52·0	39·9	Tot. 0·62	44·0	44·8	45·2	32·0

Remarks.—The first four days of the week were wet, and on Friday the wind changed to S.E., and brought fog with it. On Saturday there was also fog, which was very dense at night.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—40·6°.

ACTUAL TEMPERATURES:—

LONDON.—*February* 22 (12 P.M.): Max. 49°; Min. 37°.

PROVINCES.—*February* 22 (12 P.M.): Max. 50°, off Cape Clear; Min. 40°, Isle of Man.

The Evolution of Fruits.

THE fruits mentioned in Prof. BAILEY's last book* are the American forms of Grapes, the Mulberry, the Plums and Cherries, the Apples, the Raspberry, the Blackberry, the Persimmon, and various small fruits which we need not enumerate. The author's plan is to sketch the history of the attempts to bring the wild plants under cultivation, gradually to ameliorate the fruits, and to indicate in what direction and by what method further progress may be made. He shows how, up to the present, the development of new fruits has been more or less accidental. Growers failed in their attempts in one direction, but their experiments served to draw attention to the native species which were then taken in hand, with such success that the named varieties of Grapes grown in the States mount up to over eight hundred.

But the author's greatest satisfaction, he tells us, is in the record of the men rather than of the fruits: "The names which are generally known are those of persons who are distinguished in military operations, politics, general science, or literature; but persons who have expended equal talent and effort in other and more restricted fields of activity may have wrought as much permanent good to mankind. The agricultural and industrial status of an epoch may be of greater importance to the progress of a people than the political complexion is. It is a question if the habit of dwelling upon a few very prominent names in a few fields of human endeavour does not tend to obscure the really fundamental movements, and to distort historical perspectives. At all events, the writer is glad of the opportunity to give what prominence he may to persons who have rendered a service to the national welfare in fields which are little appreciated."

Accordingly, we find in Prof. BAILEY's book a summary history of the doings of certain pioneers, such as the DUFOURS, JOHN ADLUM, who introduced the Catawba Grape; NICHOLAS LONGWORTH, who turned it to account; EPHRAIM BULL, who originated the Concord Grape, and many others not so well known on this side of the Atlantic.

The early attempts to cultivate the European Grape failed, because, as is now known, the Vines were attacked with downy mildew (Peronospora viticola). The native Grapes are by no means immune from this pest any more than they are from the Phylloxera; but while the native species survive the onslaught, the introduced strangers fall a ready prey. These facts induced cultivators to turn to the native species, of which there are many, and to develop what may be called a national industry. Similarly, the European Gooseberry in the States succumbs to the attacks of mildew, and American pomologists therefore set to work to improve their native kinds.

The historical details given in the present volume as to this development are very interesting to the naturalist, but they will naturally not appeal so directly to the Grape-growers and pomologists on this side of the globe.

The progress made in the improvement of the Blackberry may still make us wonder that our own resources are not turned to advantage. Botanists are divided in opinion as to whether we have two or three or as many hundred varieties of Rubus, and they expend a great deal of time, and fill endless papers with descriptions which are rarely so characteristic as to be of much use to any but their authors. Consequently, wide differences of opinion exist. If all this minute critical study had been accompanied with an equally minute study of the fruit and of its potentialities, we should not have laid ourselves open to the reproach of neglecting the natural gifts of the soil. The Americans have acted very differently with their Cranberries; we could grow these also here, as well as our trans-Atlantic brethren, but for our slowness to adopt anything new.

Prof. BAILEY makes mention of several fruits not known here under their popular names. Thus the Juneberry is the fruit of the Amelanchier Botryapium; the Buffaloberry is yielded by Shepherdia argentea; the high-bush Cranberry is none other than Viburnum Opulus! the fruits of which are, so far as we know, never used here for culinary purposes; the Loganberry, supposed to be a hybrid between the Dewberry and a Raspberry; the Wineberry, Arctostaphylos alpina; Thimbleberries, Rubus species; Salalberries, Gaultheria Shallon; Salmonberries, Rubus spectabilis; Crowberries, Empetrum nigrum; Huckleberries, Vaccinium uliginosum; Bunchberries, Cornus canadensis; Molkaberries, Rubus Chamæmorus.

Curiously enough, but all of a piece with similar illustrations given in the book, the fruit of Rubus laciniatus, which is the best of our European Blackberries, has attracted no attention in the States.

In this country we tire of the endless lists of Apples and Pears, and we are not particularly thankful to those who augment the lists. We should prefer them to turn their attention towards the elimination and destruction of inferior varieties. Professor BAILEY evidently does not share this view. "In the first place we want," says he, "more varieties of every native fruit now cultivated. . . . This is because new needs are always arising, and the fruits are being grown in new regions, and new varieties are needed to adapt the species to these wants."

It is obvious that this remark applies with greater force to the enormous territorial area of the States, with their widely different conditions, than it does to us, with our restricted surface and comparatively uniform conditions. For this reason we hardly agree to the full with Professor BAILEY's remark:—

"Those persons who are looking for the coming of the perfect, all-round variety, are behind the time, and are constantly getting further behind, for it is more and more impossible to combine all the varied and contradictory specific desires of men into one plant form. There must be a best variety for every particular use and locality."

Take our Black Hamburgh Grape, or our Muscat of Alexandria, as illustrations. Newer Grapes come and go, but these remain behind as the best "all-round varieties." We have not yet improved upon these for general all-round purposes. Far be it from us to suggest that we never shall; but if we are to progress, it would seem as if we must break entirely new ground, and obtain "a greater range of variation, more divergent, and widely unlike varieties."

"The actual work of improvement," says Professor BAILEY, in concluding his volume, "will be done by a few patient souls, whose love of the work far outruns desire for applause and for pecuniary reward."

Our readers will, we trust, be able to judge from our remarks what are the general contents of the book before us, and what is the line of argument throughout.

To the naturalist and to the student of evolution the book provides a storehouse of facts, and an enunciation of principles, which are as applicable here as they are in the States; to the pomologist it furnishes an infinitude of suggestions, which he will do well to turn to practical account. The book is well illustrated, nicely got up, and provided with a good index.

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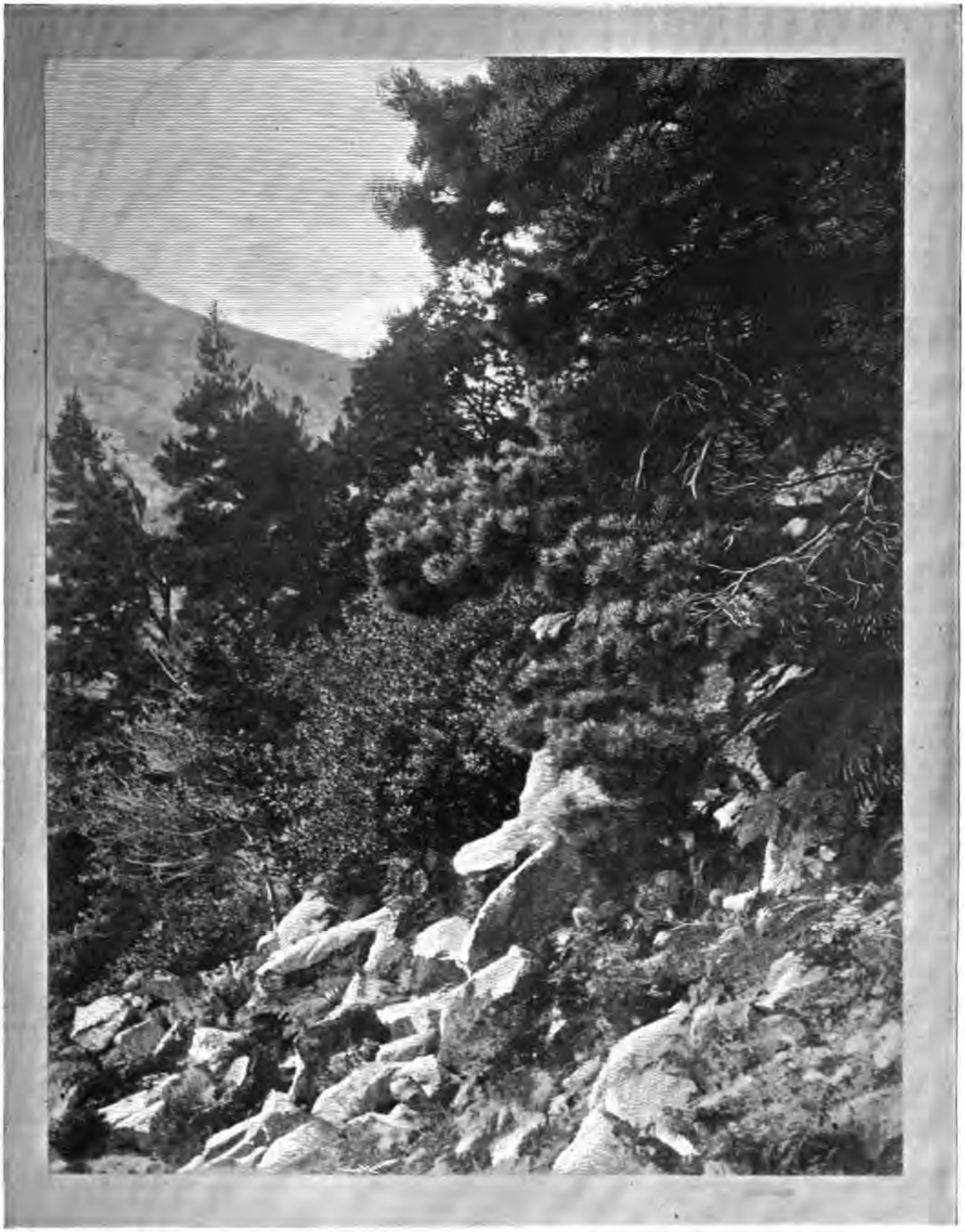
* *The Evolution of our Native Fruits . . .*, by L. H.

SUPPLEMENT TO THE "GARDENERS' CHRONICLE," FEBRUARY 25, 1899.



A VIEW IN THE SCALP PASS, DIVIDING THE COUNTIES OF DUBLIN AND WICKLOW. (SEE P. 121.)

A View in the Scalp Pass (See Supplement).—The whole of Wicklow and the adjoining portions of Dublin County are extremely picturesque, much of the country being a succession of narrow valleys and high rocky hills of rather softened contours. Arboreal and other vegetation, thanks to the salubrious moist climate and the proximity of the sea, grows with vigour wherever the soil is of fair depth, and even on the hills, as at Powerscourt, very fine timber-trees are to be met with, especially of Beech. Our supplementary illustration affords a view, one out of many, which the tourist with an eye to pleasing combinations of rugged rock and tangled masses of wild plants, trees, and brushwood, could discover in this part of Ireland, but which are not easy of imitation in a garden unless some of the chief conditions are existent. The illustration was reproduced from a photograph taken by Miss Armstrong, of Monkstown, Dublin.

Royal Horticultural Society.—The next Fruit and Floral meeting of the Royal Horticultural Society will be held on Tuesday, February 28, in the Drill Hall, James Street, Westminster, from 1 to 4 p.m. At 3 o'clock a lecture on "The Colours of Insects; their Meaning and Use" (illustrated by lime-light), will be given by Mr. H. L. T. Blake.

The Sherwood Cup, 1899.—It having been represented to the Council of the Royal Horticultural Society that the terms in which the Sherwood Cup is offered for competition on p. 52 of the Society's Arrangements, 1899, are not sufficiently definite, the following additional regulations are made:—

1. No exhibitor may stage more than 100 dishes in all.
2. The 100 (or less) dishes may be divided between the two meetings in any proportion the exhibitor pleases.
3. Special regard will be given to quality and to variety.
4. As with all other exhibits for prizes, all the exhibits must have been actually grown by the exhibitor in his own or his employer's garden. W. Wilks, Secretary.

By order of Council, Feb. 14, 1899.

Royal Gardeners' Orphan Fund.—A concert, under the auspices of the Chislehurst Gardeners' Mutual Improvement Association, was held in the Village Hall, on the 14th inst., in aid of the above charity. The concert was very successful, as, after paying the expenses, the committee are enabled to hand over a sum of £17 10s. to the Fund.

Proposed Laying of Water-mains in Hyde Park.—Many of our readers will be glad to know that the First Commissioner of Works has refused permission to the water company to construct a main under Kensington Gardens or the Hyde Park. The matter was, as our readers may be aware, made public in our issue for Saturday last, attention being called to the evils that were sure to result from the carrying out of the project.

Horticultural Club.—The twenty fourth annual dinner of the Club took place on Tuesday, the 14th inst., at the Hotel Windsor, Victoria Street, Westminster. It was in every respect a most successful one; for the first time in its history ladies were invited, and formed about one-third of those present. The chair was occupied by Sir J. D. T. Llewelyn, Bart., M.P., chairman of the Club, who, after proposing the usual loyal toasts in happy and appreciative terms, proposed the "Prosperity of the Club." He rejoiced greatly at the step forward which had been made, and he assured the ladies that their presence was much appreciated. The toast was responded to by the Secretary, who gave an encouraging account of the financial condition of the Club, and of the harmony and good feeling that existed amongst the members. Mr. Geo. Bunyard had most kindly arranged for a selection of vocal and instrumental music to be given during the evening. Mr. Harry J. Veitch placed a beautiful stand of flowers of greenhouse hybrid Rhododendrons in front of the chairman; and a sumptuous dessert, consisting of Pine-apples, Grapes, Californian Easter Beurré Pears, Peaches (from the Cape of Good Hope), Bananas, &c., was placed upon the table, owing to the kindness of Messrs. Assbee, George Monro, Peter Kay, and M. J. Garcia. The evening was a most agreeable one, and the hope was generally expressed that it would not be very long before the ladies were again invited.

The Fire at the University of Geneva.—It is a matter of satisfaction to us to be able to announce that the statement published at p. 91, was, in some important particulars, incorrect. It was based, as was stated at the time, upon one previously made public in the *Semaine Horticole*. The Delessert Herbarium is fortunately intact. It is the property of the town, not of the University, is under the direction of M. Briquet, and is contained in a building more than 500 yds. distant from the University where the fire occurred. The fire broke out in the left wing of the University, and destroyed an apartment in which were some collections, diagrams, &c., relating to the Alpine Flora belonging to Prof. Chodat. Some loan collections from foreign herbaria were likewise destroyed, as well as some physical instruments that had belonged to De Saussure. We are deeply indebted to several Geneva correspondents for pointing out this error to us. Had one of them only prevented its commission by communicating trustworthy intelligence, it would have been better still.

National Chrysanthemum Society.—Several of your readers, writes Mr. George Gordon, Kew, have written to me with reference to the new regulations of the National Chrysanthemum Society relating to amateur exhibitors, which you published in your issue of the 18th inst., under the impression that I am a member of the executive. As I have but little spare time for correspondence, I shall be greatly obliged by your allowing me to state that I occupy no official position whatever in connection with the Society.

Ruinous Railway Rates.—In connection with the proposed amalgamation of the South-Eastern and the London, Chatham, & Dover Railways, there is considerable correspondence in the daily press. Mr. A. Ayers, nurseryman, of Swanley, stated in the *Daily Mail* for Monday last, that he had just received a small case of bulbs from Haarlem, Holland. The carriage from that place to London was 2s. 1d. The London, Chatham, & Dover Railway conveyed the case from London to Farningham Road station, and their charge was 6s. The fruit growers of Kent should look to it, that in any proposed alteration in the railway services through the county, their interests be not more prejudiced than at present.

Dendrobium nobile.—The suitability of many Orchids for cultivation in large towns is again shown by a photograph from Mr. R. Robertson, gardener to H. F. Smith, Esq., in the Regent's Park district. It has been grown from a very small piece, and last year flowered for the first time. It is now a strong specimen, bearing 184 fine blooms.

Report of the Michigan Board of Agriculture.—We have received a volume containing the thirty-sixth annual report of the secretary of the State Board of Agriculture of Michigan, and the tenth annual report of the Experiment Station from July 1, 1896, to June 30, 1897. We note, as forming *Bulletin*, No. 139, Veterinary Department, of special interest, a paper by Mr. C. E. Marshall on "Bacteria," what they are, what they do, and how they are cultivated. This is of considerable value, giving, as it does, in a comparatively small space, a clear and comprehensive account of an important subject, the literature of which is not only very voluminous, but not easily accessible. The paper is accompanied by a glossary and numerous illustrations, and explains some of the bacteriological phenomena of daily life (the tainting of meat, rising of yeast, and so on), thus bringing the subject within the comprehension of the ordinary reader, who is still apt to consider bacteria as in themselves rare and isolated diseases, rather than inevitable factors in every-day life. The volume contains various other papers on agricultural subjects.

The "Shading" Season.—At no distant date the need for shading material will again be felt by Orchid cultivators, choice fruit growers, and gardeners generally. The reminder, issued by Messrs. Wood & Son, is in the form of a book that encloses samples of a wonderful variety of materials for the temporary shading of plants and houses, and also for protecting choice specimens from the attack of wasps, &c. The particular material recommended for the latter purpose is known as the "Hexagon" shading, and that for shading Orchid-houses, &c., as "Rot-proof Scrim," which has been chemically treated to make it unusually durable. Another specialty, and a good material for general purposes is "A. White." All of these and others are obtainable in almost any degree of strength.

Triple-spathed Arum.—We very frequently receive specimens of Richardia africana with a double spathe. Triple spathes are less frequent. For a drawing and a photograph of such a one we are indebted to Mr. Dinwoodie, of the Buckland Gardens, Bwlch, Breconshire. Mr. Dinwoodie is endeavouring to perpetuate the peculiarity.

Fruit from the Cape.—The *Norman*, one of the Union line of steamers, has arrived from the Cape with 610 boxes of Peaches, 202 boxes of Pears, 105 boxes of Plums, and 54 boxes of Nectarines. The whole arrived in excellent condition, and the merchants have expressed great approval of the manner in which the Company has carried the fruit—the cool-chamber arrangements appearing to be perfect, and it is hoped that the shortly expected consignment of Grapes will turn out as well. For the large freestone Peaches good prices were obtained, and were sold in the West End shops at 1s. to 1s. 6d. each. Clingstone fruit did not make so good a market, selling at prices ranging upwards from 4d. each. Plums, Nectarines, and Pears, met a sale at our last reported prices. By the way, it was to be noted that the matters of picking and packing had been properly attended to, the initial steps certainly adding largely to the final excellent result.

The Nutritive Value of Mushrooms.—The chemical composition and nutritive value of Mushrooms and fungi have been recently discussed by L. B. Mendel, in the *American Journal of Physiology*, vide *American Gardening*, January 21. About a dozen species were examined, and in most cases it was found that water amounted to 70 to 94 per cent. Agaricus campestris, the common meadow Mushroom, is practically nine-tenths water; and the Morel Morchella esculenta, has about the same amount. The digestible protein in all the specimens was found to be comparatively small, so that taking this fact and the great quantity of water, the Mushrooms themselves appear to have but little food-value—in fact, about as much as Carrots, Cabbage, and similar vegetables. On this side of the Atlantic we have been taught the contrary, and some of our English fungi have been favourably contrasted with beef-steak.

Seasoning Wood by Electricity.—A model plant for seasoning wood by means of electricity is now in operation at Messrs. Johnson and Phillips's electrical works near Charlton Junction, the system used being the Nodon-Bretonneau. The timber to be seasoned is placed in a large tank and immersed, all but an inch or two, in a solution containing

10 per cent. of borax, 5 of rosin, and ¾ of carbonate of soda. The lead plate upon which it rests is connected to the positive pole of a dynamo, and the negative pole being attached to a similar plate arranged on its upper surface so as to give good electrical contact, the circuit is completed through the wood. Under the influence of the current the sap appears to rise to the surface of the bath, while the aseptic borax and rosin solution takes its place in the pores of the wood. This part of the process requires from five to eight hours for its completion, and then the wood is removed and dried either by artificial or natural means. In the latter case a fortnight's exposure in summer weather is said to render it as well seasoned as storage in the usual way for five years. The current employed has a potential of 110 volts, the consumption of energy being about one kilowatt per hour for each cubic mètre of timber, and the greener the wood the better, because its electrical resistance is less. The liquid in the bath is kept at a temperature of from 90° to 100° F. *Times.*

PROSPECTS OF THE WHEAT CROP IN UNITED STATES.—The daily reports concerning atmospheric conditions in America must have prepared the reader for any kind of adversity in either the animal or vegetable kingdom—that concerning the latter only finds record here; and by a report received on Tuesday from New York we learn that great damage to crops is perceptible. The great Wheat-fields of the west and north-west have especially suffered from frost, and the crops are estimated to have been so much affected, that their value is calculated to have been decreased from 10 to 50 per cent. The reports from Southern States are varied in character, but they indicate disaster to varying extents, according to conditions of vegetation. At one southern station 72° was recorded before the storm-clouds gathered; on Monday last, the record was 6° above zero !

THE VEITCH MEMORIAL FUND.—At a meeting of the trustees held on the 17th inst., it was resolved to place a Medal and prize of £5 at the disposal of the Trowbridge Horticultural Society; and a Medal and prize of £5 at the disposal of the Borough of Hanley Floricultural Fête, to be competed for at their respective forthcoming annual shows. It was also resolved to place the sum of £20 at the disposal of the Lindley Library trustees.

SOCIETY FOR THE PROTECTION OF BIRDS.—We have received notice that the annual general meeting of the above society will take place on Tuesday, February 28, 1899, at the Westminster Palace Hotel, Victoria Street, London, S.W. The chair will be taken at 3 P.M. by Sir EDWARD GREY, Bart., M.P. The president is her Grace the Duchess of PORTLAND; Mrs. L. LEMON is hon. sec.; and the society's offices are at 3, Hanover Square, London, W.

FLOWER IN SEASON.—We have received a bouquet of deliciously scented Freesias from Mr. GEO. CARPENTER, West Hall Gardens, Byfleet. Being the product from two 6-inch pots, they are exceedingly good, and represent as successful cultivation as is possible. Foliage and flowers alike are strong to a degree.

PRESENTATION. — Mr. G. HARRIS, who is vacating the charge of the gardens at Alnwick Castle, and will become County Council instructor in horticulture for the counties of Northumberland, Cumberland, and Durham, was on Saturday, 18th, presented with a handsome barometer, furnished with a suitable inscription, the presentation being made by Mr. J. STEWART, principal foreman in the gardens at Alnwick Castle, as a token of the esteem in which he was held by the men employed in the gardens.

PUBLICATIONS RECEIVED.—*Report on the Calne Agricultural Demonstrations*, Wilts County Council: Agricultural Committee, Section I., Quemerford Station; Section II., Lickhill Station.—*Le Potager d'un Curieux*, par MM.] A. Paillieux & D. Bois (Paris), third edition.—*Boletim da Sociedade Broteriana*, xv., including supploments relating to the Flora of Portugal and the Botanic Garden of the University of Coimbra for the year 1897-98.—*Jevremovac Jardin Botanique du Royaume de Serbie à Belgrade*, ix. Année. — *Wood and Garden*, by Gertrude Jekyll (Longmans).

PLANT PORTRAITS.

CATTLEYA TRIANÆI var. HOFGÄRTNER WUNDEL, *Garten Flora*, t. 1458, a very highly-coloured form, the front lobe of the lip in particular being of a rich, rosy purple.

CYCNOCHES CHLOROCHILON, *Revue de l'Horticulture Belge*, February.

CYPELLA HERBERTI, *Garden*, January 14.

HERBERTIA PULCHELLA, *Garden*, January 14.

PHACELIA CAMPANULARIA, *Garden*, January 21.

PHYGELIUS CAPENSIS, *Revue de l'Horticulture Belge*, February.

PRUNUS MYROBALANA ROSEO-PLENA, *Bull. Soc. Tosc. d'Orticult.*, t. ix., 1898.

ROSE ANTOINE RIVOIRE, *Garden*, January 28; a hybrid Tea, raised between Lady Mary Fitzwilliam and Dr. Grill.

SCILLA CAMPANULATA, white and rose-coloured varieties, *Moniteur de l'Horticulture*, January 10.

NOTICES OF BOOKS.

DIE BÄUME UND STRÄUCHER DES WALDES, Von Gustav Hempel and Karl Wilhelm: II. Abtheilung, Die Laubholzer; Holzel, Vienna.

This is a treatise devoted to European forest trees and shrubs. It contains full descriptions in German of the several trees, their structure, geographical uses, &c. It is copiously illustrated with woodcuts, and has thirty-six quarto coloured plates, illustrative of catkin-bearing trees. Even to those who do not read German, this work will be found very useful by reason of the excellent illustrations.

THE GOOSEBERRY GROWERS' REGISTER.

(Bingley: Edward Fould.)

This is a little book which growers of Gooseberries for exhibition must needs have. It is one that statisticians and physiologists will find serviceable none the less so that the facts recorded are set down without the least bias towards this or that theory, and, indeed, so far as we can judge without any knowledge of the grave questions relating to origin, development, or evolution on which these pages are capable of throwing light. It is, in fact, a record of Gooseberry-shows held at various taverns, principally in the north of England, and the only question entertained is as to the number of "dwts." and "grs." that particular berries weigh. This retention of pennyweights and grains is itself a curious circumstance, convenient for Gooseberry-growers in general, but rather troublesome to foreigners and others who desire to get information out of the records.

The Gooseberries are classified into red, yellow, green, and white varieties. Size, or rather weight, is in general the only criterion considered, though, in one case, we do find the not wholly unimportant quality of flavour taken into consideration. Thus, at the "Green Man" inn, Harborne, Leveller, Dan's Mistake, Blucher, and Transparent are noted as having been exhibited, and, presumably, premiated for flavour. In some cases we find that the competition is open to all "honest" growers ! We hope that this qualification applies to all growers of this useful fruit. Among the heaviest berries during the last eighty-nine years are London, a berry of which in 1852 weighed 37 dwts. 7 grains, the heaviest berry yet recorded. Numerous entries show that this variety has yielded berries of 30 dwts. and upwards on several occasions, but it has never exceeded the weight recorded in 1852. We do not understand whether the tables given on p. 78 apply to one year, 1898, or to an average of many years, but it is evident that Blücher (red), Diadem (green), Leveller (yellow), Surprise (green), Transparent (white), are among the heaviest. The weights of the winning sorts have varied from a minimum of 18 dwts. 22 grains in the case of Sportsman in 1809, to a maximum of 37 dwts. 7 grains in the case of London in 1852.

A poetical (?) effusion appended to the volume tells us that—

> "This London of renown was that famous Huntsman's son
> Who was raised in a Cheshire village, near the Maypole in Acton;
> While in bloom he was but small, yet still so fast he grew
> That everyone admired him, for his equals are but few."

The epic goes on to describe the consternation of "Lion" at the success of London, his defiance, the challenge, the intervention of other combatants; but the opinion is that—

> "The Bobby is the favourite, both in village and in town."

though, so far as we can make out, Bobby has never weighed more than 34 dwts. 20 grains.

A little more care in editing future editions will be desirable, and the importance of the statistical details is such that we trust the *Gooseberry Growers' Register* may have a long and successful career.

APPLE SMART'S PRINCE ARTHUR.

ON the occasion of the meeting of the Royal Horticultural Society's committees on Tuesday, January 31 last, W. Roupell, Esq., Streatham, exhibited this remarkable-looking variety (fig. 49). It is an excellent winter culinary fruit, which remains in good condition under proper treatment till March. The skin is orange-coloured, with broken streaks of crimson, and some amount of green. The eye is rather open, with erect convergent segments set in an angular depression; the stalk is short, inserted to its full length in a cavity. The flesh is tinged with yellow, firm, juicy, and of good flavour. It is a variety much grown about Maidstone.

HOME CORRESPONDENCE.

BLOOM AT ARD CAIRN, CORK.—The following Daffodils were, on February 19, in full bloom out-of-doors. The weather is charming, warm as in April, and insect life abounds. The Daffodils Androcles, Cervantesii, Countess of Annesley, Claddagh (a seedling from N. maximus), Golden Spur, Henry Irving, Ard-Righ, King Umberto, Tuscan Bonnet, Butter-cup, Princeps, Saragossa, North Star, Early Bird, Maximus longevirens, Minimus minor, Cyclamineus, and Telamonius plenus. Many of the white Trumpets are in bud; Polyantha varieties, six or seven, including Soleil d'Or and Gloriosa. Of Anemones, there are St. Brigid, fulgens, and Beauty of Cannes. The Lenten Roses are very beautiful; Prunus Pissardi, as great trees, white as if covered with snow-flakes; Pyrus japonica, Azara microphylla, Snowdrops of all sorts, Glory of the Snow; and sheets of yellow colour from the Crocuses. The perfume from the Azara microphylla is as penetrating as that of Vanilla. Tulips, of which a large collection of late varieties has been formed, are breaking through the soil, and look vigorous and full of promise. *B. H.*

CHRYSANTHEMUM PRINCESS BLANCHE.—The beautiful white flowers of this valuable decorative variety may be had in good condition until the middle of February. The plant is naturally dwarf, and has a bushy habit, rarely exceeding 2 feet in height. I enclose several flowers for your inspection. *H. K., Faringdon, Feb.* 21.

BEGONIA × MOONLIGHT, AND OTHERS. — I should much like to find B. Moonlight, which was grown so successfully at Chiswick some years ago. The variety was raised by the late Col. Clarke, who gave us some other good hybrids, including Weltoniensis. It is about thirty years ago that I first knew this, and grew it successfully in Sussex, and at that time it was thought as much of as Gloire de Lorraine is at present. From my earliest associations with plant-growing, Begonias were always great favourites; and under the instructions of the late Mr. G. Parsons I commenced to hybridise them.

my first attempt being with B. insignis and B. boliviensis. The result was a good batch of plants, which showed distinctly that a cross had been effected; but unfortunately, the stock at the nursery was sold off, and the best varieties were lost. B. insignis is by no means to be despised. At one time I had a house full at Chiswick, loaded with bloom; they were in 8-inch pots, and were much admired. The remarkable strides made in the improvement of the tuberous-rooted Begonias has somewhat overshadowed the older winter-flowering species; yet they are well worthy of attention, and if I had the opportunity, I should prefer to work on these rather than on any other class of plants. At Chiswick, I was fairly successful, both in culture and hybridisation; but those which received First-class Certificates in 1880 have long been surpassed, though I believe the one named after myself would find favour even now. It was of hybrid origin, had medium-sized, pink flowers, and small foliage—quite distinct from the ordinary type of the tuberous Begonia seen at the present time. *A. Hemsley, Edmonton.*

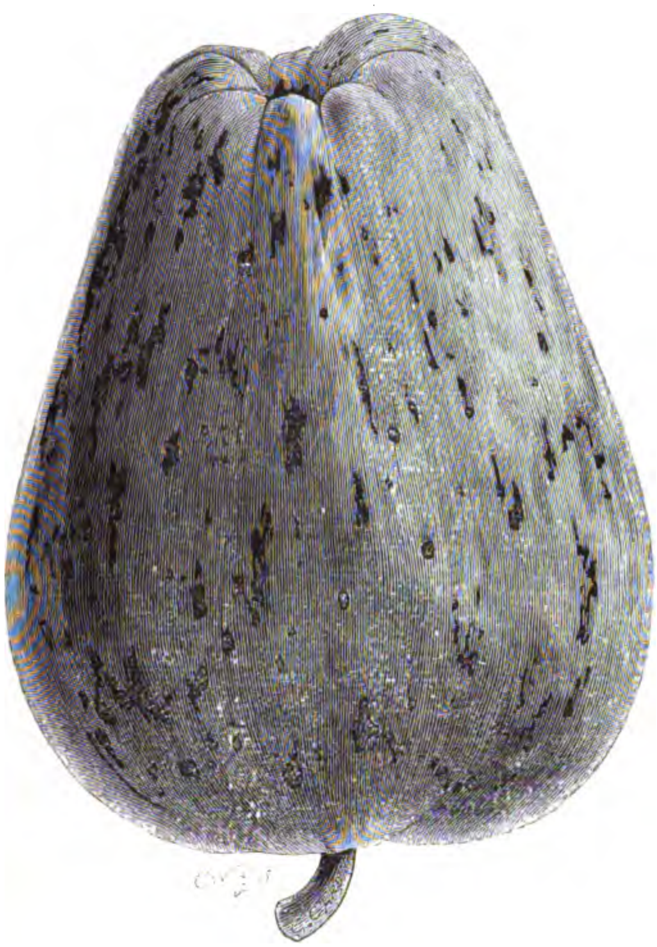


Fig. 49.—Apple, Smart's Prince Arthur. (See p. 122.)

(Shown by Mr. Roupell at the Meeting of the Royal Horticultural Society, January 31, 1899.)

PYCNOSTACHYS URTICIFOLIA.—Observing on p. 82 ("Kew Notes"), of a recent issue, the mention of this plant, it may be interesting to know that plants of Pycnostachys have recently flowered here. Our plants have been fairly successfully grown in pots. I have no doubt but that the plants are better adapted for planting-out, and should be employed for that purpose. They seem to have a tendency to become too tall and loose for pot-work. It is certainly a subject well worthy of general cultivation, and should have an excellent future when once introduced into our gardens. I am informed by Mr. J. Hughes that these plants were obtained from seed brought to Wentworth by the Hon. H. Fitzwilliam from Africa, the precise locality and date I am not able to state. *P. Bolt, Wentworth Gardens.*

WHAT CONSTITUTES ODONTOGLOSSUM WILCKEANUM?—In an article under the above title in your issue of February 11, p. 82, Mr. Crawshay introduces some remarks respecting myself, which to say the least, are in bad taste, without having the merit of being strictly true. He carefully quotes certain remarks of mine respecting the identity of the so-called Odontoglossum crispum Golden Queen, and states, "He now tardily admits, though in a manner as if he had never doubted the facts, which have been stated by the writer (Mr. C.) both in and out of print for years past, and strongly contested by Mr. Rolfe . . . . it has taken him nearly two years to advance," &c. Had not Mr. Crawshay quoted the actual page, I should have thought he had overlooked my remark—"it is quite possible that it is a form of the variable O. × Wilckeanum, in which the shape of O. crispum is nearly reproduced. Other instances could be adduced among hybrids." This quite disposes of this part of his remarks. And with respect to the so-called O. crispum flaveolum, which called forth Mr. Crawshay's remarks, he may refer to 1893, and he will find me saying: "O. crispum flaveolum . . . This is very near O. × Wilckeanum elegans and O. × W. sulphureum, having longish segments of primrose colour, with a few spots on the sepals only, and the characteristic crest" (*Orch. Rev.*, i., p. 204). On the very next page Mr. Crawshay may find my summary of the characters of O. × Wilckeanum (it had taken me over four pages to discuss the various so-called species referred to it), as follows—"Considering the present hybrid as a whole, it is remarkable what a wide range of variation it presents. Just as in the case of O. × glorioso-crispum, there appears to be almost every possible combination of the characters of the two parent species. The robust habit, branched inflorescence, and more elongated segments of O. luteo-purpureum may be combined with the white ground of O. crispum, and with the heavy spotting of the former, or almost without spots, as in so many forms of the latter. O the compact habit of O. crispum may be coupled with the yellow colour and brown blotches of the other parent; while all kinds of intermediate forms occur, both in shape and colour. It is now quite certain that this hybrid is more polymorphic and polychromic than is generally supposed." These remarks were not passed upon anything that Mr. Crawshay had said, and will enable anyone to judge of the accuracy or otherwise of the picture which he draws of Mr. Rolfe strongly contesting something which he has stated in and out of print for years past. Mr. Crawshay in 1897 described "true O. crispum" as "spotless," and remarked "as soon as the yellow usurps more than the disc of the lip, and as soon as spots and marks appear, then I consider that there is evidence of hybridity. No one can tell the myriads of cross-fertilisations that have taken place. This has been proceeding till one can fancy there is not a true crispum left." My reply to this was:—"Here I cannot agree with Mr. Crawshay, for there are both yellow and spotted forms in which I cannot detect the slightest deviation from the typical O. crispum in its essential characters, and especially in the details of the crest." The point may be debateable, but I think Mr. Crawshay lays too much stress on hybridisation, and not enough on variation pure and simple. Your readers can now judge whether Mr. Crawshay was justified in his remarks about naming plants, that "if the botanist or expert does in this way, we are wise in doing all we can to correctly name them without their aid," which, after all that I have done to clear up the origin of these plants, and taken in connection with some of his other observations, I consider to be both personal and offensive. I am quite as anxious as Mr. Crawshay to see these plants extricated from the confusion into which they have fallen, but have no desire to dogmatise on the matter. A few well-chosen experiments would probably throw some light on the question whether secondary hybrids do occur in this group, and Mr. Crawshay, who has the plants, might very well try the effect of crossing O. × Wilckeanum back on to one or the other of its parents, or of crossing it with O. × Andersonianum or O. × Coradinei, and let us know the result. *R. A. Rolfe.*

TRAVELLER'S IVY.—"J. C. B." says that Clematis vitalba is so called in all, or nearly all, ancient botanical works. Will he kindly mention *one*? *James Britten.*

WELL-CULTIVATED CALANTHES.—I enclose a photograph of our annual group of Calanthes. They are mostly C. Veitchi, but include a few plants of C. vestita rubro-oculata and C. v. lutea. The individual spikes of C. Veitchi are good, the best having reached a height of 4 feet 6 inches, with from thirty-seven to forty-two expanded blooms on each at one time, and with several buds to open. Taking the whole collection, the average number of expanded blooms would be about thirty-three. I find the strongest bulbs do not produce the finest blooms, either in colour or size. The plants of C. vestita rubro oculata and v. lutea have been strong in proportion, and make a fine contrast amongst the carmine colour of C. Veitchi. This district has been particularly free from fogs this winter, and the Calanthes have been in bloom from the middle of October to the third week in January. *James Machar, Gr., Branwoods, Great Baddow, Chelmsford.* [The photograph represents very successfully-cultivated plants, and well illustrates the decorative value of these charming winter-flowering Orchids. Ed.]

MISLETO AND PHORMIUM TENAX.—At Bishop's Teignton recently, I noticed in a garden some large bunches of Misleto, green and vigorous, on several Apple-trees; and immediately beneath one of the trees a fine plant of Phormium tenax, which was not afforded any protection in the winter. The longest leaves were about 5 feet, and the plant was as vigorous-looking as possible. *W. S.*

EULALIA JAPONICA VARIEGATA, ETC.—A fine specimen of this interesting plant may be seen at the Moor Gardens, Bishop's Teignton. It is growing alone on the lawn, near to beds of shrubs. The plant is just 12 feet through, and almost circular in outline. There were many plumes still upon it, one of which I forward. I saw it during the present month, and the flowers and leaves had turned yellowish-brown. Even then it was conspicuous among other occupants of the beds and borders.

A very large specimen of Chimonanthus fragrans was full of flower, the individual blooms were small, but the number of them and their fragrance was very grateful. *W. Swan.*

CLEANSING TOMATO SEEDS.—I have read with interest the several notes upon this subject, and would explain my own method. I first cut the fruit in half, and with the haft of a budding-knife scoop out the seeds and pulp into a pan. The following day I obtain a very fine-meshed sieve, and sift some silver-sand, so that it will pass through it readily. I then put the seeds and pulp into the sieve, and cover it with sand, afterwards gently working the seeds and sand together with the hands. The sieve is next immersed in a pan or tub of water, and the contents are stirred well. The sand sinks, leaving the seed partially cleaned. This process is repeated two or three times, and then with a tub of fresh water the cleaning operation can be finished by stirring the seeds under water. As they settle on the bottom, gradually draw the sieve aside, and the skins which surround the seeds while in the pulp, and all immatured seeds, will pass out. This can be repeated. Then tilt the sieve slightly in the open air, and when partially dried, spread out the seeds on trays to finish off. I have had good crops of Tomatos from seeds thus cleaned, even after keeping them for several years. I enclose a sample of seed washed last July, on which I should like your opinion. *H. Southcott, 2, Cleveland Road, Chichester.* [The seeds are very fresh-looking, and thoroughly clean. Ed.]

CONTINUOUS FLOWERING OF PANCRATIUMS.—On Feburary 5 of last year you published my letter on above, p. 91, wherein I stated that I had cut Pancratium-blooms on 366 consecutive days, from February 1, 1897, to February 1, 1898, inclusive. This morning, February 1, they have again completed another 365 days, without a break of a single day, making in all 731 consecutive days, and they are throwing up fresh spikes rapidly. I have only about 100 large pots with several bulbs in each. *Henry Porter, Barkfield Nursery, Freshfield, Liverpool.*

FILMY FERNS IN A COOL FRAME.—At the Moor Gardens, near Bishop's Teignton, I was recently shown a capital lot of these Ferns in an ordinary unheated brick frame. The back wall of the pit was about 3 feet high, the lights having the usual slope. The interior had been deepened rather more than would be necessary for ordinary plants; there were specimens of Todea superba, with a score or more fronds on each plant, many of which would measure fully 18 inches across. These plants were in splendid condition, with no sign of thrip or other insect pests. Trichomanes radicans was equally vigorous. These plants, I was informed, had been grown under these conditions for a number of years, and since it has been proved again and again that fire-heat is detrimental to the culture of many of the filmies, it would seem far wiser to grow them under conditions where moisture prevails naturally, rather than in cases or parts of greenhouses and intermediate-houses where constant syringing becomes necessary. I remember some years ago, when visiting Messrs. Birkenhead's nursery, at Sale, having seen a sunken pit, in which a quantity of Todeas were growing. There, also, no artificial heat was used, and during the winter a few mats was all the covering given. So well had these Todeas grown, and distributed spores, that the interior walls was covered with young plants of one or two years growth. Many Todeas and other filmy Ferns are crippled, and some lost altogether, through being subjected to too warm a temperature. *W. Swan, Exmouth.*

AMERICAN NOTES.

CHICORY GROWING.

The cultivation of Chicory in America is not exactly a new industry nor a new idea, but the home production still falls considerably short of the demand. Mr. M. G. Kains, of the Department of Agriculture, says that the imports of dried roots in 1891 was 1,867,577 lb., and that it increased to 16,930,162 lb. in 1897. There was at the same time a considerable falling off in the imports of prepared Chicory, showing that manufacturers have got in the way of preparing the material here. Mr. Kains asserts, after investigation of the Chicory-growing business in America, that we can grow quite as good an article here as in any other land, and he thinks we ought to do it.

Mr. Burbank's "New Creations."

Mr. Luther Burbank, of Santa Rosa, California, comes near to being the best-known horticulturist in America. His fame rests chiefly on the production of new varieties of fruits and flowers. He is a skillful hybridiser, lives in an exceptionally favourable climate, and does work on an incredibly large scale. His announcement for 1899 has just been issued, under the taking title of *New Creations*.

Hybrid Plums.

The most prominence is given this year, as it has been sometimes before, to new varieties of Plums. The "leader" is a hybrid bearing the name of Climax. It is derived from Botan (Prunus triflora) fecundated with pollen of the Simon Plum (Prunus Simoni). The fruits which I have examined are very large, strongly heart-shaped, dark red, firm-fleshed, free-stone, and of the finest quality. Other hybrid or cross-bred Plums announced are Sultan (probably a mixture of Prunus triflora and P. Simoni), Bartlett (same specific parentage), and Shiro (said to be a hybrid combining Prunus cerasifera, P. triflora, and P. augustifolia). These are all very interesting. It now remains for time to test their value. Mr. Burbank is not the only man in this country who is working upon the hybridisation of Plums. There are several others, among whom may be specially mentioned Messrs. T. V. Munson, Texas; J. S. Breece, North Carolina; F. T. Ramsey, Texas; Theo. Williams, Nebraska; C. E. Pennock, Colorado; and G. L. Taber, Florida. So many varieties of hybrid, or supposed hybrid origin, have lately been introduced to the horticultural public that I have undertaken a special study of them under the direction of the Vermont Experiment Station. I find from forty to fifty named varieties now known and cultivated to some degree, mostly experimentally. Some of them seem to be of considerable promise. The introduction of these hybrids marks an important epoch in our pomology, for up to the present time most of our cultivated sorts have been pure-bred seedlings of the several species grown in this country.

The Simon Plum.

The Simon Plum, Prunus Simoni, has been the object of a good deal of comment in this country, largely of an adverse nature. The quality is very inferior, at least, in most cases, and the trees are seldom very productive. Still, the fruit has such a fine appearance that it sells readily from the fruit-stands to a certain class of customers, such as eat Ben Davis Apples and Kieffer Pears. It has been grown commercially to some extent in California, and I have heard reports of its profitable cultivation in the Eastern States. The most singular and promising fact I have met in connection with this Plum, however, is its apparent success as a stock for hybridising. A large number of Mr. Burbank's best hybrids are strongly marked with Simon Plum characters, and yet such varieties are almost uniformly of the highest quality. The astringent and mawkish flavour of the Simon Plum seems to disappear entirely in crossing, and to leave the fine solid flesh and brilliant colour to co-operate with better flavours from other parents.

Gossip.

The American Pomological Society expects to hold its biennial meeting this fall in Philadelphia. Professor Bailey has just issued a new book. It is a text-book of general agriculture for use in schools. Professor Goff has published a second edition of his attractive little work on *Principles of Plant Culture*. At the time of writing, the winter meetings of the various state and provincial horticultural societies are in full swing. Taking them altogether, the one most notable feature about them is the decline in the excitement over the San José scale. *American Gardening*, of New York, which has recently changed management, has also changed dress and style somewhat with the beginning of the year, and is offered at a slightly increased price. There is practically no longer a "visible supply" of Apples in this country; and the fruit is a rarity even on the best furnished tables. *F. A. Waugh.*

THE DUTHIE PARK, ABERDEEN, AND THE LATE SHOW THEREIN.

I had the pleasure of spending a week in the "granite" city and neighbourhood at the time of the Aberdeen Horticultural Society's annual show in August last. I arrived on the show-ground about 10 P.M. the night preceding the show, and there saw a "woondrous sight." A long avenue adjoining the tents was blocked with vehicles of all sorts, from a garden wheelbarrow to a railway dray. On each there was the usual exhibitor's paraphernalia, and clustering over the top of all were the exhibitors and their assistants; these assistants being sons or daughters, wives or sweethearts, or some "chum" come to lend a hand. It was evidently the time chosen by the amateurs for staging their stuff. By amateurs, in Scotland, we do not mean the nobility who keep half-a-dozen or more professional gardeners. These Aberdeen amateurs are mostly tradesmen, may be granite-masons, or paper-makers, who do their nine hours' work every day, and their gardening after 6 o'clock. Hence, many of them on the night before the show would rush home, swallow a cup of tea and a bit of bread-and-butter, and get into the garden to cut or lift their flowers or vegetables, and afterwards proceed to the show-ground.

It was an inspiration to move along and watch the eager faces and the busy hands at work. In one corner, a man was endeavouring to select the best half-a-dozen French Marigold blooms, by the aid of the light of a halfpenny candle held at his side by a boy. On the grass close by, the finishing touches were being given to a collection of vegetables by two men on their knees in a devotional attitude. A lady was underneath a lamp putting some annuals into position which had got awry through the jolting of her conveyance. A friend of my own started off to find a fountain, which he was told was "ower there," guiding his steps by the light of a borrowed carriage lamp; he stumbled headlong, lamp, watering-can, and self, right into a flower-bed, and after that decided to give up hunting for water till daylight. This almost equals my own experience at Arbroath station on the journey north. I left Glasgow about 4 o'clock in the afternoon, and was due at Aberdeen, *viâ* the Forth Bridge, about 9. Having had only a very light lunch in Glasgow before starting, I hoped to refresh myself at Dundee; but there we only stopped a minute or two. At Arbroath I determined to do something, and so jumped out of the train and asked a porter where the refreshment-bar was. "Along there," was the laconic answer. I went along, and could find none. As I jumped into the carriage I saw the same porter again, and said to him, "There's no refreshment place along there." "There's a water-tap," said he! The Aberdeen show was duly reported in your columns at the time, and it is therefore not of it I intend to write, but of the fine park in which it was held.

The Duthie Park, the gift of the late Miss Duthie, extends to 44 acres, and is under the able management of Mr. Peter Harper. The situation of the park is in every way a beautiful one, and it is boldly and effectively laid out. Here Nature supplies mountains for a background, and rivers and woodlands for a middle distance, and Mr. Harper fills in the foreground—with what? Largely with hardy annuals, and it was their beauty and appropriateness that caused me to make the few notes which I am now extending. In a park of such extent as this there are many bold clumps of trees, and many beds of shrubs. Round the outside of many of the latter, about 18 inches back from the grass-hedging, Mr. Harper has planted Arabis alpina, Erica carnea, Alyssum saxatile, and alpine Auriculas, which form beautiful edgings in spring. The space between these plants and the grass is carefully cultivated and manured in the autumn and again in the spring, and it is here the fine effects are obtained with many of our common varieties of hardy annuals. At the time of my visit the most beautiful were the following: Godetias Lady Satin, Rose, Gloriosa, and Duchess of Albany; Jacoba, a very fine dwarf strain, with double flowers of a rich crimson colour; Eucharidium grandiflorum and Linum grandiflorum were two other striking crimsons. Among white-coloured flowers were the well-known Alyssum maritimum, Candytuft, and Matricaria inodora, fl.-pl., the latter being kept by cuttings every year. Brachycome iberidifolia, or the Swan River Daisy, was very-well grown and particularly charming; although it ranged in colour, white predominated. Viscaria oculata formed very brilliant hues in the sun, and that lovely annual Linaria reticulata aureo-purpurea seemed quite at home, forming thick lines of its brown flowers tipped with gold. Others used with capital effect were, Convolvulus minor, blue; Lupinus nanus, a most serviceable annual which keeps a long time in good order; Omphalodes linifolia (Venus navel-wort); Nemophila insignis, Venidium calendulaceum (like a Calendula or pot-Marigold); Calliopsis Drummondi, Saponarias, and Eschscholzias. The latter were very well grown, and embraced all the newest shades of orange, salmon, salmon-pink, rose, and carmine. I must not forget that pretty little compact blue annual Kalfussia amelloides. Gazanias and a capital strain of Lobelia (Duthie Park blue), are propagated by cuttings and used in association with Pelargoniums in the beds near the entrance-gates. Dahlias are also largely grown, all the newest and best varieties of the Cactus class being much in evidence; but it was of the humble annuals, and the effective use made of them by Mr. Harper, that I took up my pen to write, and I have done so at a time when the experience at Duthie Park may be suggestive to others arranging for summer effects. I have already stated that Mr. Harper thoroughly cultivates his narrow borders in autumn and spring. He is never in a hurry to sow, and I think this is important. He waits until the end of April, or even until early May, and until the soil is, through weather conditions, in first-class sowing order. The plants are moderately thinned when in a small state, before they have time to get drawn up into a spindly condition. *William Cuthbertson, Rothesay.*

LAW NOTES.

MESSRS. R. H. BATH v. W. F. GILLETT.

At the last sitting of the Wisbech County Court, before His Honour Judge Willis, Messrs. R. H. Bath, Ltd., The Floral Farms, Wisbech, sued W. F. Gillett, of Conway Road, Cardiff, architect, under a default summons for £3, in respect of goods supplied. Mr. Leak, on behalf of the plaintiffs, said he did not think it was any use asking for an order for payment forthwith; the claim was for plants supplied for defendant's garden. The defendant was an architect, and they found that the furniture was in his wife's name.

His Honour remarked that might be so, and added, that a great service was rendered to the public by Messrs. Bath, who, in reply to advertisements, sent out goods that people might rely upon. No person like the defendant, however, should order those things without having the means to send the money direct. Eventually judgment was entered for the plaintiffs for the amount claimed, to be paid at the rate of £1 per month.

The Licensing of Gardeners.

A large meeting of nurserymen and florists was held on Thursday evening, February 16, at the seed warehouse of Messrs. Wm. Clibran & Son, Manchester, to receive a report from Mr. E. Collens, concerning his recent visit to London with Mr. Treeby, as reported in our issue of February 18.

Sir John Maclure, M.P., personally conducted the deputation to the Treasury Office, Whitehall, and they were introduced to the private secretary to the First Lord of the Treasury (the Right Hon. A. J. Balfour), by whom they were very kindly received, and the object of their visit was fully explained by Sir John.

Mr. Collens explained the position taken up by the trade as to the injustice of the case. The absurdity of the judgment was pointed out, and Mr. Collens' impression from the questions asked, and the way the answers were received, was that he (the secretary) was surprised at the judgment Mr. Yates had given.

The Secretary asked Mr. Collens to leave his notes; and a promise was given that the papers should be carefully perused, and that he would communicate with the deputation through Sir John Maclure.

The manner in which the deputation was received was gratifying, and the members came away satisfied that justice would be done to their case.

Mr. Collens then reported that he had had an interview the same day with Mr. Butcher, solicitor to the Nursery and Seed Trade Association, who stated that the association was anxious to take the matter up in London, and a special appeal case might be taken out and fought through the courts there.

Mr. Collens thought it would be advisable to leave the case in the hands of Mr. Butcher, and it was for the meeting to decide whether it should be proceeded with in Manchester as previously arranged, or whether it should be transferred to London.

After considerable discussion, in which Messrs. Yates, Hooley, Birkenhead, Watkins, Plant, and Brownhill joined, the following resolution, as proposed by Mr. Birkenhead, and seconded by Mr. Hooley, was carried unanimously:—

"That this meeting is of opinion that it would be better to wait the decision from the Treasury Office before proceeding any further in the matter; but in the event of the answer not being favourable, that the whole affair should be transferred to the hands of the Nursery and Seed Trade Association to proceed further with."

Mr. Birkenhead proposed, and Mr. C. Noyes seconded, that a very hearty vote of thanks be accorded to Messrs. Collens & Treeby for the very efficient way they had conducted the proceedings in London, and to Mr. Watkins for his services; also to Mr. Clibran for his valuable help, and for the use of the room for their meeting. This was carried unanimously.

Lord Bath and the Licensing of Gardeners.

In reference to the taxation of gardeners, we may recall the fact that the Marquis of Bath was summoned recently at Warminster for employing male servants without taking out licenses. The case for the Inland Revenue authorities was that fifty men were employed in the gardens and grounds at Longleat, and that twelve claimed to be under-gardeners were not licensed. The figures were admitted, and it was contended that twenty of the men were employed and received pay as ordinary labourers, and that licenses were not required. The Bench took this view and dismissed the summons, and allowed three guineas solicitor's fees.

Notice of appeal was given on behalf of the Inland Revenue. A similar decision was given a few weeks previously, and it was repeated in order to afford an opportunity for an appeal. *Devizes and Wiltshire Gazette.*

Obituary.

George Smith, Vice-Regal Gardens, Dublin.—It is with deep regret that we learn of the death of this veteran and much-respected member of the horticultural craft. Mr. Smith died on February 19 at his residence at the Vice-Regal Gardens, deeply mourned by his family, and regretted by his numerous friends. An impressive funeral service was held in Rutland Square Presbyterian Church on Wednesday morning at 9 o'clock, after which the funeral took place at Mount Jerome Cemetery.

Mr. Smith was seventy-three years of age, and of Scottish extraction, and had been in charge of the Vice-Regal Gardens in the Phœnix Park for about forty years, during which time it was celebrated for its good and artistic management. In the early days of flower gardening the bedding out at these gardens was perhaps the earliest and best in Ireland. The vineries are extensive, and contain one or two remarkable Vines, grown on the extension principle.

Formerly under the control of the Lord Lieutenant for the time being, the gardens have of recent years been under Mr. Smith's more immediate care. Standing as they do close beside the Vice-Regal Lodge, and in the centre of the noble Phœnix Park (with its groves of native Hawthorn, and splendid groups of Elm-trees planted by the Earl of Chesterfield), these gardens are very beautiful, and contain a very healthy and interesting collection of memorial trees, most of them planted by H.M. the Queen, the late Prince Consort, and their children.

It is not too much to say that while under the earlier management of Mr. Smith, under Vice-Regal auspices, these celebrated gardens have been of immense value as an efficient working school of gardening. Not only were they an excellent example to the country at large—the best of object-lessons—but from their precincts good and capable men were engaged for other gardens throughout Ireland. Mr. Smith leaves a widow, also a son and a daughter, to whom we tender our most respectful sympathy in their sad loss.

Rev. A. Headley.—We regret to see the death announced, in the *Journal of Horticulture*, of the Rev. A. Headley, on February 15. The deceased clergyman was a frequent contributor to the pages of the *Journal*, and the originator of the phrase "Our Journal," as applied to it.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

February 14.—*Present:* Mr. McLachlan, in the chair; Mr. Hudson, Rev. W. Wilks, Mr. Michael, and Rev. G. Henslow, Hon. Sec.

Diseased Apple-twigs.—These were received last December from Rev. A. Foster-Melliar. Prof. W. E. Smith, after a prolonged and difficult investigation, has pronounced the disease to be due to bacteria, and forwarded the following interesting report:—"The portions of branches of Apple sent show a disease with the following characters. The wood is sound, except where in contact with the bark; the bark is completely disorganised, with the exception of the hard fibres and the dry outer corky layer. Investigations for signs of fungi or insects made on arrival of the material (December 10) gave no result. Portions were placed in a moist chamber and examined during January. The bark became soft and spongy, no fungus-growth appeared, but bacteria were found in numbers. Amongst other bacterial forms, a bacillus was common which agreed with that figured by Duggar (*Cornell University Bulletin*, 145, 1898). Other symptoms, as far as presented by the material sent, agreed with American descriptions of the bacterial disease "fire-blight." We have, however, no record of the tree having blackened twigs or leaves during last summer—an important symptom of this disease. "Fire-blight" was proved, chiefly by the work of Burrill, in 1880, to be due to the action of bacteria. A good general account, based on further research, is given by Waite (*Year Book of the U.S. America Department of Agriculture*, 1895). The disease appears in America on Pear and Quince oftener than on Apple, and is also known on allied species. It attacks chiefly vigorous well-fed trees with much soft young wood, similar, in fact, to this Apple-tree as described by your correspondent. A warm moist season or situation favours the disease; dry weather checks it, and during winter it makes little progress. The remedy is to prune off thoroughly all parts which show discoloured or destroyed bark, and to carefully burn them. Pruning is best done in autumn or spring. The cuts must be made well below diseased parts, and large wounds should be painted with tar. If the pruning be severe, it may induce a large growth of young wood next season; this must be carefully watched, as it is an excellent starting-point for a reappearance of the disease. The bacteria are propagated by insects, which visit a gummy fluid containing bacteria, which is given out from diseased parts of the bark. Then they visit a similar fluid exuded from the bark where exposed by cutting, boring insects, or other agents, and they infect this with bacteria. A similar fluid in the flowers also tempts insects there, and the bacteria thus introduced destroy the fruit crop." A unanimous vote of thanks was given to Professor Smith for his valuable report.

Lourya campanulata.—Mr. Jas. Hudson exhibited a specimen of this uncommon plant in blossom, of which figures will be found on p. 117.

Pear-tree with Caterpillar.—Mr. McLachlan showed a twig with the interior eaten away by the caterpillar of the wood leopard moth, Zeuzera Æsculi. It was received from Mr. N. Nutter, of Leigham Cottage, St. Julien, Old Streatham. The best remedies for this and boring-beetles is to run a stout wire up the gallery and pierce the grubs. Petroleum, or spirits of turpentine, poured down the hole would also probably be effective in destroying them.

Richardia, two-spathed.—Rev. H. F. Goffe, Thoresway, Caistor, forwarded a specimen in which the uppermost leaf had assumed the form of an additional spathe—a not uncommon phenomenon. It was hoped that experiments would be made to fix this peculiarity if possible.

Cedar with aërial roots.—The following communication was received from Mr. J. W. Odell, The Grove, Stanmore, together with photographs of the tree described, and a large mass of aërial roots:—"During the recent heavy gales considerable damage was done to one of the large Cedars of Lebanon in Mrs. Brightwen's grounds here; a huge branch was torn from the parent trunk, and revealed a very curious growth of aërial roots. I forward to you with this letter photographs showing the broken branch in two positions, and also a part of the very large growth of adventitious roots. You will observe on photograph (marked *A*) a large scar, corresponding in size and shape to the base of the branch on photograph marked *B*. The roots sent were growing from the edges of the contiguous portions of the trunk and broken branch, and grew downwards from this position towards the base of the tree, but had only penetrated so far as is indicated by a small branch at the base of the scar (seen on both photographs). Both on the branch and on the scar left on the trunk the wood is very much splintered, and the roots were found not only in a large mass as sent, but also growing in between the splintered portions of the wood. The appearance of the fracture indicates, I think, some previous injury (perhaps by lightning), and as a consequence some moisture may have penetrated into the union between the trunk and the branch. I have once or twice before seen similar roots in broken pollarded Willows, but have never observed the formation of such adventitious roots in a Conifer, and thought perhaps it would have some little interest for your committee of the R.H.S."

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT.

February 4.—The monthly meeting was held at Newport on the above date, Dr. J. Groves presiding over a good attendance.

Mr. George Bennett, florist, Ryde, gave an interesting lecture on the "Cultivation of Potatos," several of his remarks leading to considerable discussion, as they were quite contrary to the general practice of Potato-growers. Mr. Bennett recommended the planting of sets without shoots or spears, and to be put at a depth of about 9 inches, to render it unnecessary to earth them up. Amongst the varieties for general cultivation he recommended Up-to-Date, White Beauty of Hebron, and Suttons' Satisfaction.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

February 9.—On the occasion of meeting held at the Coal Exchange, Manchester, on the above date, there were present, Messrs. G. Shorland Ball (in the chair), Thomas Statter, J. Leemann, H. Greenwood, J. Cypher, R. Johnson, and Thomas Mills (Hon. Sec.).

Thomas Statter, Esq., Stand Hall (gr., Mr. Johnson), showed Cypripedium insigne Luciani, receiving a First-class Certificate; C. Wiertzianum (Rothschildianum × Laurenceanum), First-class Certificate; and Dendrobium Whitefieldi (Leechianum × albiflorum), an Award of Merit. G. W. Law-Schofield, Esq., New Hall Hey (gr., Mr. Shill), showed Dendrobium Ainsworthianum (First-class Certificate); also a yellow form of Cypripedium insigne. John Leemann, Esq., Heaton Mersey (gr., Mr. Edge), showed Cattleya Trianæi, West Bank House var. (Award of Merit); C. T. Chevalieriana (Award of Merit); Lælio-Cattleya Gottoiana (Award of Merit); Cyp. nitens superbum; Cyp. Creon; Dendrobium Wardianum candidum (Award of Merit); Maxillaria Lindeniæ (Award of Merit); and Cattleya chocoensis alba (Award of Merit). This exhibitor received also a Silver-gilt Medal for a miscellaneous group.

H. Greenwood, Esq., Haslingden (gr., Mr. Gill), showed Dendrobium Cybele roseum (Award of Merit); D. nobile Murrhinianum (Award of Merit), and a group of Dendrobiums for which he received a Vote of Thanks. Mrs. Briggs, Bury, Accrington (gr., Mr. Wilkinson), showed Cyp. Beckmanni (First-class Certificate); Cyp. insigne, Harefield Hall var (First-class Certificate); Odontoglossum hybrid (First-class Certificate); and O. crispum (Award of Merit). O. O. Wrigley, Esq., Bury (gr., Mr. Rogers), showed Cyp. Lathamianum aureum giganteum (Award of Merit); C. L. inversum (Award of Merit); and Dendrobium atroviolaceum.

A. Warburton, Esq., Haslingden (gr., Mr. Lofthouse), showed Odontoglossum crispum Jeanette (First-class Certificate), Cattleya Trianæi Imperator (Award of Merit), and Cypripedium Prewetti.

W. Duckworth, Esq., Shaw Hall, Flixton (gr., Mr. Tindale), showed Dendrobium Schneiderianum. C. J. Crosfield, Esq., Sefton Park, Liverpool, showed Cattleya Trianæi Jean Ritchie and Odontoglossum crispum Crosfieldianum.

Mr. James Cypher, nurseryman, Cheltenham, showed Lælia anceps Schroderiana (First-class Certificate); also a miscellaneous group, for which he was awarded a Silver Medal.

Mr. John Robson, Altrincham, showed Dendrobium Dominianum (Cultural Certificate). Messrs. Stanley-Mobbs & Ashton, Southgate, showed Cypripedium Spicero-Chamberlainianum.

RENFREWSHIRE GARDENERS' MUTUAL IMPROVEMENT.

February 10.—A meeting of the Renfrewshire Gardeners' Mutual Improvement Society was held on this date; Mr. Robert Macfee presided, and there was a good attendance.

Mr. John Ferrier, foreman in the gardens, Craigends, read a paper on the "Vine," giving an account in a clear and practical manner of the methods required in successful culture.

Mr. Dewar, Curator, Botanic Gardens, Glasgow, read a paper on "Rambles in Switzerland." Mr. Dewar was on a botanical expedition in Switzerland, and his description of the flora of the Alps was of great interest.

Thereafter, Mr. John Stewart, gardener, Cartvale, showed, by the aid of lantern-slides, a large number of pictures of Swiss scenery, which were much appreciated.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

February 13.—An interesting lecture on "Destructive and Injurious Sawflies" was given on the above date before the members of this association, by Mr. P. H. Foulkes, B.Sc. Edin., of the Reading College.

In introducing the subject, the lecturer said that sawflies belonged to the order Hymenoptera, which included all those insects which had wings of a membranous character, and that this particular order was also divided into various classes. The flies touched upon were the Apple sawfly, Gooseberry and Currant sawfly, Cherry and Pear sawfly, and the Turnip sawfly. Their time of appearing, method of attack, the best means to take for their prevention or destruction, and the various stages of growth, were fully dealt with, the latter more particularly so by the aid of several illustrations shown by limelight.

SHERBORNE GARDENERS' MUTUAL IMPROVEMENT.

At a meeting recently held, an address was given by Mr. Crook, gardener of Forde Abbey, on "Profitable Fruit-culture."

After asserting that the demand for good fruit was increasing, and that fruit cultivation, if properly carried out, was a paying business, he maintained that Cox's Orange Pippin, the qualities of which it took the English thirty years to recognise, had been pronounced by expert judges to be the best Apple of the day, and a man who understood his business would not sell it for less than 2*s.* per dozen. The West of England was one of the best parts of this country to grow fruit; but what did they find in their orchards? Miserable crabs. If they planted Apples like the Cox's Orange Pippin, they would make money instead of sending it out to America, Tasmania, and California. He had seen Blenheim Orange in Yeovil Market for which 3*d.* per lb. was asked, and they would be astonished at the figure that worked out per bushel. He had gathered 110 lb. off a Lane's Prince Albert, which was only 7 feet high, and 7 feet in diameter; and another tree, Seaton House, which was introduced from Scotland, and bears early, would pay to grow.

WARGRAVE AND DISTRICT GARDENERS'.

February 15.—At the fortnightly meeting held on the above date, Mr. T. Haskett, gr. to J. W. Rhodes, Esq., Hennerton, read a paper on "Kitchen Gardening," describing what a kitchen-garden should be, and the great amount of forethought necessary to keep a garden as it ought to be kept.

The soil and situation best suited for such a garden were dwelt upon, and the proper methods of digging, trenching, and ridging explained.

DUMFRIESSHIRE AND GALLOWAY HORTICULTURAL.

February 18.—A special meeting of the committee was held on the above date. The prize schedule for the forthcoming show was finally revised, and the show will be held in the Drill Hall, Dumfries, on Wednesday, September 6.

After some discussion as to the desirability of inaugurating a course of lectures on some of the more popular flowers in their season, it was agreed to give a lecture on "Daffodils" in April.

SHIRLEY AND SURROUNDING DISTRICTS GARDENERS' AND AMATEURS.'

February 20.—The monthly meeting of the above society was held at the Parish Room, Shirley, Southampton, on the above date, the President, W. F. G. Spranger, Esq., C.C., presiding over a good attendance of members.

The lecture was under the auspices of the Technical Education Committee, Southampton County Council, and was given by Mr. E. T. Mellor, B.Sc., London Lecturer in Biology at the Hartley College, Southampton.

"The Influence of Light on Plants," was the subject of the lecture, which was amply illustrated by means of lantern slides and experiments. A few questions were put to the lecturer and answered, and at the close a vote of thanks was heartily accorded to Mr. Mellor for his most interesting lecture. There was a nice display of spring-blooming plants, contributed by the members; and Mr. Curtis, gr. to the President, was awarded 1st prize for three sorts of forced vegetables. During the month there was also an excursion of a large number of the members to chemical works of Messrs. Spooner & Bailey, Eling, near Southampton, by special invitation from the firm. Mr. E. Bailey courteously showed the party over the works, explaining in all its details the manufacture of chemical manures.

ROYAL GARDENERS' ORPHAN FUND.

The Annual Meeting.

February 17.—The annual meeting of the supporters of this excellent institution was held on the above date at Anderton's Hotel, Fleet Street, London, E.C. Among the company present, which was larger than usual, were noticed Messrs. W. Marshall, H. J. Veitch, Dr. M. T. Masters, W. Roupell, Geo. Gordon, J. Assbee, A. W. G. Weeks, W. Poupart, H. B. May, H. J. Jones, C. E. Osman, J. Smith, P. Rudolph Barr, A. Outram, A. F. Barron, R. Dean, B. Wynne, A. Dean, W. H. Divers, &c.

The minutes of the last meeting having been read by Mr. B. Wynne, and adopted by those present, the Chairman (W. Marshall, Esq.) moved the adoption of the Committee's Report, which ran as follows:—

Report and Statement of Accounts for the Year ending December 31, 1898.

At the close of the eleventh year since the institution of the Fund, your committee are enabled to announce that it is gratifying to find that there is an increase in the annual subscriptions, though the committee are compelled to admit that they have not hitherto received that measure of support from the gardeners of the kingdom that they hoped for in the early days of the Fund. The financial support received has largely been derived from sources, the existence of which was scarcely contemplated at the outset, such as receipts from the sale of flowers at horticultural exhibitions, the opening of gardens and plant-houses to the public, concerts, &c. Gardeners' societies in particular have given a generous measure of support which materially assisted the Committee in administering relief to the fatherless when it was most urgently needed. In view of the number of applicants for the benefits of the Fund, your Committee do most earnestly appeal for the sympathy and support of the entire gardening community, and especially to that section of it for whose orphan children the assistance afforded by the Fund is solely intended.

There are now sixty-eight children receiving the benefits of the Fund, in addition to those to be elected this day. Most gratifying assurances are constantly being received from the mothers of orphan children, to the effect that the assistance rendered during the time the child was on the Fund, proved of unspeakable advantage to many a struggling widow; and not less satisfactory has been the testimony borne to the timely and valuable aid rendered to some orphans in giving them a start in life after they had ceased to be chargeable to the Fund.

The total number of children who have been placed on the Fund since its foundation is 103, and the total amount paid to the orphans is £6836 15*s.* Special grants in aid have been made this year to the amount of £18 5*s.*

The annual festival took place at the Hôtel Métropole in April last, and the committee were fortunate in securing the valued services of Charles E. Keyser, Esq., Aldermaston Court, Reading, High Sheriff of Berkshire, as their chairman, whose forcible appeal in aid of the Fund assisted in realising the sum of £557 11*s.*

Your committee have great pleasure in placing on record their high sense of the important services rendered to the Fund by the treasurer, N. N. Sherwood, Esq., whose generous support of the charitable institutions connected with horticulture is so keenly appreciated by the whole gardening community; and they give hearty thanks to their auditors, Messrs. Martin Rowan and P. Rudolph Barr, for bestowing so much attention in auditing the accounts. Mr. Barr is the retiring auditor, and is nominated by your committee for re-election.

By the death of Baron Ferdinand de Rothschild, the fund loses one of its vice-presidents, and a generous supporter for several years past. The committee recommend that C. E. Keyser, Esq., be this day elected a vice-president to fill the vacancy.

It is with great regret that your Committee have to announce the retirement of Mr. A. F. Barron from the post of secretary to the Fund through failing health. As one of the chief promoters of the Fund, and its secretary since its establishment, Mr. Barron has done much to further its interests, and merits the best thanks of all interested in gardeners and gardening; and in consenting to be nominated for election as a member of the Executive Committee, Mr. Barron proves his devotion to the Fund, and his ready willingness to continue to afford assistance in carrying on the good work. The committee unanimously express their sympathy with Mr. Barron, and their best wishes for his improved health and well-being.

Mr. G. W. Cummins has resigned his seat on the committee, and Mr. T. Peed, Roupell Park Nurseries, S.E., has been elected to succeed him. The members of committee who retire by rotation are Messrs. Cuthbert, Laing, Lyne, Nicholson, Osman, Poupart, Smith, and Walker. These, with the exception of Messrs. Nicholson, Smith and Laing, being eligible, offer themselves for re-election. The committee nominate Messrs. A. F. Barron, Chiswick; J. Cheal, Crawley; and W. Howe, Park Hill Gardens, Streatham, for election this day.

The committee, having advertised for a secretary, have considered the numerous applications, and recommend Mr. Brian Wynne for election at a salary of £100 per annum.

CASH STATEMENT FOR THE YEAR ENDING DECEMBER 31, 1898.

Receipts.				£	s.	d.
To balance from last account				935	17	3
,, Subscriptions, general	£282	9	6			
,, ,, collected by local secs. ...	79	16	0			
				362	5	6
,, Donations, general	148	2	7			
,, ,, collected by local secs. ...	64	8	9			
				212	11	4
,, The Emma Sherwood Memorial				13	0	0
,, Annual dinner				557	10	0
,, Card collection				29	5	2
,, Advertisements in lists of subscribers				28	9	0
,, Dividends on stock and interest on deposit ..				266	13	8
				£2,405	11	11

Note.—Investments:

2¾% Consols	£7,070	6	10
3 % Canada stock	2,000	0	0
L. & N. W. Railway pref. stock	340	0	0
Thomson Memorial Trust: East India Railway B. annuity of £14 (cost) ...	430	11	0

Expenditure.				£	s.	d.
By Allowances to orphans	£898	5	0			
,, Emma Sherwood Memorial ...	13	0	0			
,, Grants in aid	18	5	0			
				929	10	0
,, Annual dinner				134	16	1
,, Secretary's salary				105	0	0
,, Printing and posting subscribers' lists				29	17	0
,, Printing and stationery	13	11	9			
,, Annual general meeting, audit, &c.	9	6	11			
,, Hire of room for committee meetings	2	2	0			
,, Postages	15	0	10			
,, Bank charges	1	18	8			
,, Sundry expenses (petty cash) ...	6	10	0			
				48	10	2
,, Purchase of £340 L. & N.-W. Ry. 4% Preference Stock				499	5	3
,, Balance—						
Cash at bank	558	10	11			
Cash in hand	0	2	6			
Cash on deposit	100	0	0			
				658	13	5
				£2,405	11	11

Having inspected the securities and examined the books and vouchers supplied to us, we hereby certify the above account to be correct. (Signed) P. Rudolph Barr } Auditors.
M. Rowan }

Dated January 21, 1899.

There was general satisfaction with the nature of the above report, and after the chairman's proposition had been seconded by Mr. A. W. G. Weeks, the report and cash statement were accepted without discussion.

Election of Officers.

Proceeding to the election of officers, Mr. R. Dean moved a vote of thanks to Mr. N. N. Sherwood for his services as Treasurer to the Fund, and at the same time moved Mr. Sherwood's re-election, which, after being seconded by Mr. Osman, was carried with enthusiasm.

Mr. P. Rudolph Barr was then re-elected joint-auditor on the proposition of Mr. H. B. May, seconded by Mr. A. Outram. The re-arrangement of the committee, as proposed in the above report, was also duly effected, and no counter-propositions were made.

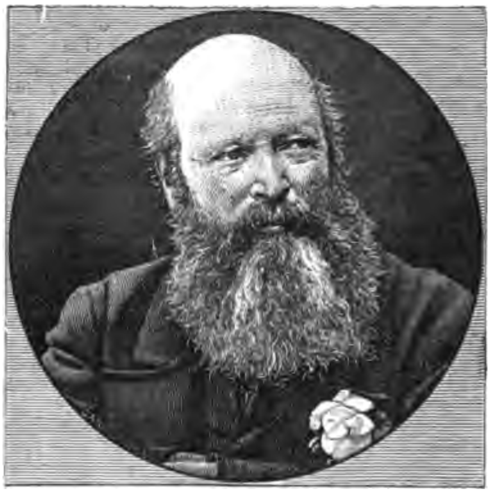
Proceeding to the election of secretary, the chairman announced that the committee had received 291 replies to their advertisements for a secretary in the room of Mr. Barron. A sub-committee had been appointed, who after several sittings had eventually selected six candidates. These were each balloted for by the whole of the committee, and the result was in favour of Mr. Brian Wynne. The Chairman had, therefore, to propose the election of that gentleman by the meeting. He said they all knew how Mr. Wynne had lent a helping hand to Mr. Barron for some years past, and there was no one better suited for the position. The proposition was seconded by Mr. R. Dean, and passed unanimously without further discussion. Mr. Wynne then thanked the meeting for its confidence, and pledged himself to further the interests of the Fund to his utmost ability.

Mr. H. J. Veitch next proposed a resolution thanking Mr. A. F. Barron for his labours on behalf of the Fund since its inception eleven years ago, which for some years was done without pecuniary reward. Also that there be presented to Mr. Barron an illuminated address upon vellum. It was with the deepest regret that Mr. Veitch moved such a resolution, knowing the circumstances of Mr. Barron's health that have led up to his retirement. We can only hope, said Mr. Veitch, "that with the relaxation of duties it may please God to spare him for many years to come."

Dr. Maxwell T. Masters, who seconded the motion, said, the meeting was in perfect unison with the sentiments expressed by Mr. Veitch. They were all deeply grateful to Mr. Barron. The chairman added that everyone knew what a great deal Mr. Barron has done from pure love for the gardening fraternity. Mr. Barron thanked the meeting in tones scarcely audible for their kind words, and said that it gave him much pain to relinquish his duties. He hoped, however, to be of further service to the Fund as a member of the Committee.

Alteration of Rules.

Rule V.—Upon the recommendation of the Committee, it was decided in Rule V., line 4, after the word "purpose," to omit the words "All donations and legacies," and to insert the following:—"All receipts, except legacies and donations specially given as such for investment, shall be considered as subscriptions, and be available for current expenditure. All legacies and special donations."


MR. W. MARSHALL,
Chairman of the Committee of the Royal Gardeners Orphan Fund.

Rule XI.—Line 5, after the word "require," the following addition was made:—"Not more than two children of the same family can be in receipt of the benefits of the Fund at the same time." The chairman explained the circumstances that had led the Committee to propose this alteration, and letters were read from Mr. J. B. Stevenson and Mr. J. Miles, honorary local secretaries at Bournemouth and Southampton respectively, in which they advocated even a more stringent regulation than that proposed.

Mr. A. Dean suggested that at a future time it would be expedient to insist that there must be four children under twelve years of age in a family before two of its members could be upon the fund at the same time. The alteration as proposed by the committee was carried unanimously.

Election of Candidates to the Fund.

The chairman stated that of the nineteen candidates for benefit from the fund the committee recommended that nine be elected. Two of the nineteen had left this country, and were therefore not eligible—these were James Seegar and Eugenia Seegar. Anyone present who had voted for either of these children could transfer them.

The scrutinising committee subsequently reported that the following nine children were elected:—

Alice Gilhorne Seaton	375 Votes.
Muriel Gutteridge	373 ,,
Daisy Agnes Spong	282 ,,
G. H. Donaldson	256 ,,
Jas. Henry Tanton	250 ,,
Helen Macdonald Milne	217 ,,
Isabella Emma French	205 ,,
Vanda Mary Bartlett	200 ,,
Harry John Mason	195 ,,

In regard to one of the unsuccessful candidates, Arthur George Wood, a second scrutiny was asked for, and it was found that the votes recorded for him were 190.

At six o'clock in the evening, a friendly dinner of the members of the committee and friends was held, under the presidency of Mr. W. J. Nutting.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.					Rainfall.			Bright Sun.	
	Above (+) or below (−) the Mean for the week ending February 18.	Accumulated.				More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.					
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	4 +	19	11	− 18	− 41	4 +	35	8·1	10	14
1	5 +	22	14	− 24	− 22	2 +	34	5·8	22	19
2	4 +	27	16	+ 48	− 96	1 −	33	3·5	30	18
3	7 +	33	7	+ 81	− 177	1 +	33	3·5	37	20
4	5 +	33	12	+ 68	− 137	4 +	34	6·0	27	22
5	6 +	33	1	+ 93	− 167	3 +	32	5·4	33	26
6	4 +	22	7	+ 5	− 36	0 aver	36	9·1	24	17
7	5 +	30	8	+ 67	− 97	0 aver	35	6·9	23	20
8	5 +	33	3	+ 74	− 102	7 +	34	11·0	24	23
9	2 +	23	10	+ 4	− 24	0 aver	39	6·3	32	23
10	2 +	29	8	+ 35	− 42	3 +	37	10·2	34	24
*	4 +	43	0	+ 149	− 57	0 aver	34	7·2	28	25

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.: 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending February 18, is furnished from the Meteorological Office:—

"The *weather* was again very mild, unsettled, and rainy generally. Thunder-storms were experienced at some of the Irish and English stations between the 12th and 14th. Some improvement took place over the greater part of England during the latter part of the week, and fog became general over England on the 18th.

"The *temperature* was above the mean, the excess ranging from 2° in Ireland, to as much as 6° in 'England, S.,' and 7° in 'England, E.' The highest of the maxima were recorded on the 17th, when they ranged from 63° in 'England, S.W.' (at Llandovery), and from 58° in the 'Channel Islands' and 'England, E.,' to 51° in 'England, N.E.,' and to 50° in 'Scotland, W.' The lowest of the minima were registered on the 16th, and ranged from 27° in 'England, N.E.,' and from 29° in 'Ireland, S.' to 36° in 'England, S.,' and 37° in the 'Channel Islands.'

"The *rainfall* was rather less than the mean in 'England, N.E.,' and just equal to it in 'Scotland, W.,' 'Ireland, N.,' and the 'Channel Islands.' In all other districts there was some excess, the fall in the 'Midland Counties' and in 'England, S.W.' being nearly double the normal value.

"The *bright sunshine* was in excess in most parts of the kingdom, but somewhat deficient in 'Scotland, N. and E.,' and 'England, S.W.' The percentage of the possible duration ranged from 37 in 'England, E.,' 34 in 'Ireland, S.,' and 33 in 'England, S.,' to 22 in 'Scotland, E.,' and 10 in 'Scotland, N.'"

CATALOGUES RECEIVED.

John Jefferies & Son, Cirencester—Seeds.
John Russell, Richmond, Surrey—Seeds, &c.
James Hubbard & Son, Sleaford, Lincolnshire—Seeds.
W. W. Johnson & Son, Ltd., Boston Lincolnshire—Seeds.
Frank Dicks & Co., 66, Deansgate, Manchester—Seeds.
Wood & Ingram, Huntingdon—Seeds

John Turner, North Street, Wetherby, Yorks—Seeds.

J. R. Pearson & Sons, Chilwell Nurseries, Nottingham—Pelargoniums, Fuchsias, Dahlias, Cannas, Bedding Plants, &c.

Chas. R. Shilling, Hartley Seed Stores, Winchfield—Seeds.

David Dow & Son, 91, High Street, Falkirk—Seeds.

Jas. Cocker & Sons, 130, Union Street, Aberdeen—

Albert F. Upstone, 1, Market Place, and 35, Church Street, Rotherham—Seeds.

John Cowan & Co., Ltd., Gateacre Nurseries, Gateacre, near Liverpool—Seeds.

Louis Van Houtte, Père, Ghent, Belgium—Begonias, Gesneraceous Plants, Azaleas, Camellias, Rhododendrons, Gloxinias, Palms, &c.

W. Atlee Burpee & Co., Philadelphia—Wholesale List of Seeds.

Answers to Correspondents

Begonia: *S. P.* The rust is due to the attacks of a mite (Sarsonymus); parasitic fungi follow. Burn any hopelessly-affected plants, and fumigate the rest mildly once a week; or dip the plants in weak Tobacco-water.

Books: *Woodman.* *A Manual of Forestry*, by W. Schlich, published by Messrs. Bradbury, Agnew & Co., Ltd., 8, 9, 10, Bouverie Street, Fleet Street, E.C.

Cattleya: *X. Y.* Judging from the poorly developed flower sent, it is C. Trianæi, pale form.

Cyclamen Flowers of two colours on one plant: *James McCulloch.* It is no uncommon occurrence for these plants to "sport."

Ericas: *J. T.* Erica hyemalis is not included in *Index Kewensis*, being a hybrid. The proper spelling of the name of the other variety mentioned is E. Wilmorei.

Failure of Bulbs of Tulips and Hyacinths: *W. B.* The Tulips sent are not of flowering age; and the Hyacinth was forced before its roots had made much progress, hence the abortive flower-shaft.

Fungus on Lucerne: *H. B.* The fungus is Pseudopeziza medicoginis, Sacc., a well-known parasite on Lucerne. As spraying is practically out of the question, the best course to follow is to cut diseased patches as soon as possible, so as to prevent the extension of the fungus by means of spores. Strewing the ground with straw or other litter, and firing, helps to arrest the disease, by destroying infected leaves that have fallen to the ground. *G. M.*

Leaf-bud and Fruit-bud: *F. A. B.* The buds are readily distinguished, a fruit-bud being larger, thicker, and more abruptly pointed than a leaf, or, in gardeners' parlance, a "wood-bud." Some varieties of Pears, of which Marie Louise and Jargonelle are examples, produce their finest flower-buds at the tips of spurs of 6 to 8 inches in length, and this fact should not be lost sight of by the pruner. In order to prevent a tree of these or similar varieties getting inordinately furnished with these long fruiting-spurs, spurs in three different stages should be encouraged: that is, spurs hard cut back, spurs singled out from the best-placed of the shoots the result of this hard pruning; and, finally, the fruit-bearing spurs. These may be obtained in pretty regular rotation on every branch. As the lowermost branches of a Pear tree seldom fruit so abundantly as the upper ones if pruned like them, the fruiting spurs should be allowed to grow long, and they may even be nailed to the wall between the branches, if space permits; or they may hang outwards from it to the extent of 1 foot.

Manuring Vine Borders: *E. B.* Cow-dung is of very little value as a manure for Vines; oxen-dung from the feeding shed is far superior, but it should not be applied before it has partially decayed. Do not apply it if the soil is heavy, nor plaster it over the border, as doing this would hermetically close the soil against the entry of air and roots need air. Better employ manure water during growth alternately with clean water. Some of the patent artificial vine-borders are good stimulants to apply before affording water.

Melons and Cucumbers in a Stove: *E. B.* The treatment required by Melon and Cucumber plants is scarcely required by the inmates of the ordinary stove, and either the stove-plants or the fruits must suffer. How, for example, could you afford the necessary dry air that a ripening Melon requires if its flavour is to be passable, or the suitable sort of ventilation? The conditions usually obtaining in a fruiting Pine-stove, a tropical aquarium, or Palm-house, would suit the Cucumber better, but Melons grow best by themselves, as they need special treatment.

Myrtle Losing its Leaves: *C. J. P.* The leaf sent shows that the plant has been greatly infested by white thrips, a common pest on the Myrtle in dry greenhouses. The plant should be taken from the wall and well cleaned with petroleum emulsion or Gishurst compound-soap, applied according to the printed directions on the box. Except during winter a Myrtle should be well syringed, twice or thrice a week, and whilst growing actively twice daily, which will do much towards keeping it free from thrips and red spider.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*T. T. W.* 1, Daphniphyllum glaucescens; 2, Daphne Mezereum; 3, Elæagnus pungens variegata; 4, not recognised, perhaps a Lonicera; 5, Quercus cuspidata; 6, Leycesteria formosa.—*Alpha.* Bletia hyacinthina.—*P., Penge.* These Adiantums have so varied by garden forms, that it is not easy to determine exactly what they are. Yours seem to be:—1 and 3, Adiantum decorum; 2, Adiantum cuneatum variety; 3, Adiantum Williamsii; 5, Adiantum cuneatum. The dead piece of Orchid is probably Oncidium flexuosum.—*M. R. M., Neath.* A very fine variety of Cattleya Trianæi.—*C. K.* 1 and 2, varieties of typical Cœlogyne cristata; 3, C. cristata alba (hololeuca); 4, C. cristata Lemoniana.—*Artus.* 1, Pinus excelsa; 2, Juniperus communis; 3, Phyllirea media; 4, Prunus lusitanica; 5, Jasminum nudiflorum; 6, Cotoneaster Simonsii.

Narcissus: *R. C. H.* It is not an uncommon occurrence.

Nespula: *W. K.* Loquat Eriobotrya may be intended. The Japanese Medlar is called by the French, Neflier du Japon. In the event of your plant being either of these, ordinary cool greenhouse treatment is all it wants.

Peach Fruits Splitting: *Nireus.* An abundance of water suddenly saturating the soil may, as you suggest, be the cause of the splitting of Peach fruits when approaching ripeness. If the trees be fed with stimulating manures at the time, or the atmosphere charged with excessive moisture, these circumstances would aggravate the malady. An article upon the subject was published in the *Gardeners' Chronicle*, September 10, 1898, p. 198.

Plants and Gas used with Incandescent Burner: *G. W.* The amount of gas issuing from the vent, being less than with the ordinary one, the injury to plants exposed to the fumes would be correspondingly less.

Potatos for Planting: *Old Subscriber.* Abundance, Chiswick Favourite, Early Regent, Magnum Bonum (late), Schoolmaster, Snowdrop (late), The Gentleman. The above are good croppers, of handsome shape, and fine quality. Improved Ashleaf is the finest early variety, but it crops only moderately.

Potato Grub: *Old Subscriber.* Liming will be found the best remedy. Gas-lime might be used in small quantity this season, and in greater quantity in early autumn, for the following spring planting. Quick-lime only should be used at the rate of 40 to 50 bushels per acre.

Primula sinensis with Foliaceous Flower: *C. R. S.* Such specimens are interesting, because they prove what botanists always insist upon, that the organs of a flower are modifications only of leaves. Hence, occasionally, and for reasons we cannot explain, the one is substituted for the other. The specimen sent is not a "novelty of merit," but a "monstrosity," or an instance of irregularity in the growth of a particular plant.

Purple Crocus: *X.* Omitted last week. No. 1, Crocus Imperati.

Scorzonère, of the French: *J. A. G.* This is our Scorzonera, an edible root cultivated similarly to the Carrot. The seed may be sown in March in drills 10 to 12 inches apart, and the plants thinned early to a distance of 4 to 5 inches apart. The ground should be hoed occasionally. If the spring be dry, the seed may be afforded water a few times. It is a hardy plant, and need not be lifted in the autumn unless the ground is required for something else.

Spanroofed-house: *Alpha.* Your data are insufficient, as you should have given the height of the side walls to enable us to calculate the cubic contents.

Strawberry Field: *Strawberry.* You should obtain the services of a horticultural valuer to inspect the field, and then fix the prospective value of the next crop.

Strawberry Forcing-houses, &c.: *C. D.* Very early forcing is perhaps best carried out in lean-to houses, but later fruits are just as well brought on in low span-pits, fitting these up with central staging, and ample means of ventilation. Such a house may be sunk in the soil 2 or more feet, and thus economise fuel, or at least avoid the use of strong heat. It should run north to south. The plants should be grown in flower-pots, 5 inches wide for the earliest batches, and 6 to 7 inches for later ones.

Trichopilia: *Veritas.* T. Galeottiana flowers in August; T. coccinea (marginata), in May and June; and T. Warneri (probably T. Wageneri of Reichenbach is meant which differs scarcely at all from T. fragrans), flowers in the winter season.

Vines in Flower: *E. B.* The Vines may be accommodated with temperatures by day with fire-heat alone, that is, on cloudy or cold days, of 65° to 68°; but with sunshine and but little artificial heat, 70° would not be too high, air being afforded, for without air admitted to the vinery, the setting of the flowers will not be satisfactory. The temperature in the afternoon may range at closing time from 65° to 70°; at 6 P.M., 60°; and at 6 A.M., 55° to 56°. There must be little fluctuation of temperature allowed at this critical period. We cannot say if high temperatures have caused injury, only a person on the spot would be enabled to decide that point. The Muscat Vine in the vinery, if not at the warmest end, may fail to set satisfactorily. You should have covered the outside border a month or two ago with stable-dung and tree-leaves, over which shutters, tarpaulin, frame-lights, should have been placed to ward off the wet and retain heat in the materials. If this bed be made 2 feet thick, it is not likely to cause harm. It is not yet too late to be of use. If you have none of the above things, cover it with straw-thatch, and lay some long poles across the thatch to keep it in position. The bed may need a partial renewal with warmed materials once or twice before the increasing sunheat calls for its renewal. Do not remove it all at once.

Wireworm: *W. B.* Very difficult to eradicate; quicklime dressings, and quicklime dug and trenched into the soil does good. Fallowing after dressing the land with soot and salt, or gas-lime laid on an inch thick, are beneficial. After all, deep cultivation, that is, burying the top spit where the creatures abound three spits deep, will work wonders in freeing the land if persisted in once in three years. They must have access to the air; therefore, shallow soils, which do not admit of deep digging, are usually the worst infested. In gardens where the wireworm is a plague, it is advisable to sow seeds of the Lettuce—a plant it is very partial to—alongside, but a foot or more distant from lines of Carrots, Parsley, Cabbage, Cauliflower, &c.

Communications Received.—W. Alexander.—W. C. H., Cape Town.—W. W.—S. A.—Walshaw & Son.—W. B.—F. Dibbens.—R. C.—W. C. Harman, Cape Town.—A. B. S.—J. M.—W. B.—K. McDonald, of Logan.—E. B.—A. C. F.—T. H. S.—F. A. E.—F. S.—W. C.—A. B., Jersey.—A. D.—S. A.—G. B. M.—C. W. D.—Dr. Bonavia.—H. T. M.—J. B., Wilts (next week).—D. T. F.—W. T.—J. R.—W. R.—F. W. B.—G. L. S.—J. O'B.—T. B.—F. Nash.

Specimens and Photographs Received with Thanks.—R. B.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libraries.*

(*For Markets, see p.* xii.)

THE
Gardeners' Chronicle
No. 636.—SATURDAY, MAR. 4, 1899.

BUD VARIATIONS.

WE find in the *National Nurseryman*, published at Rochester, New York, the following remarks on sports and bud variations which are of special interest to fruit-growers, and which we therefore take the liberty to transcribe :—

"An instructive paper on the application of plant breeding through bud selection, to the improvement of varieties, was read by G. H. Powell, horticulturist, of the Delaware Experiment Station, at the tenth annual meeting of the Peninsula Horticultural Society at Milford, Del. In the course of his paper he said :--

Every bud on a tree produces an offspring which can be distinguished from every other offspring, just as every seedling. The distinction between a seedling variety and the fruits produced on a single tree lies only in the degree of difference between them. The reason for this is, that no two trees or no two buds on a tree exist in exactly the same conditions of life. The tree should be considered not as a single individual, but as a collection of individuals, with the bud as the unit. Among the many individuals, or buds, on the tree, there is the most intense struggle for existence. Some buds receive more light, more air, more room in which to grow and expand, and more plant food, and from these unequal conditions there result strong branches, weak branches, long branches, short branches, and dead branches. In fact, no two branches are ever alike, because no two are placed in exactly the same conditions.

In the same way, no two fruits are ever produced exactly alike, because the buds from which they come and the conditions in which they develop are always slightly different. So it happens that in an Elberta Peach-tree the fruits will be large or small, roundish or pointed, highly coloured or pale, or some other peculiarity distinguishes one Peach from every other Peach.

This variation existing in the buds of a tree is one of the most important principles underlying all vegetable life, and is particularly important in horticultural operations, because the variations which are manifest in the buds of a plant are transmitted through propagation.

The practical fruit-grower knows that some trees never bear, that some trees occasionally bear, and that some trees always bear. Further, if he were to examine the branches of a single tree through a series of years, he would find the same phenomenon pertaining to individual branches.

I have in mind a Currant plantation which contains some 10,000 bushes of Fay's Prolific, which came directly or indirectly through cuttings from twenty-five Fays, purchased at 1 dol. each some ten or twelve years ago. The original bushes were uniform in size, and heavy bearers. As the Fay Currant was one of the best varieties extant twelve years ago, and the plants were scarce, the cheapest way to secure a plantation was to take cuttings from a few bushes. In the haste for a large number of plants, the new wood was cut from these bushes every fall. When more bushes were established, they were divided into cuttings as fast as new wood was made. Little attention was paid to the bearing capacity of the bushes in the second generation, from which the cuttings were taken, because the original twenty-five were exceptionally heavy bearers. The result at the present time is 12,000 Fays, some of which are tremendous bearers, others light bears, while still others produce no fruit at all.

The question arises, how could this condition have happened if there is not the widest variation in bearing tendencies in the buds of the Fay Currant?. It may be answered, that the soil in which the plants grew was the immediate cause of these wide variations in the Fay plantation. But this is not true, as the soil is uniform and in a high state of culture, and the Fay is an uncertain bearer everywhere. The explanation, it seems to me, is not difficult to understand. When the Fay was first introduced, every Currant-grower wanted Fays, and it was necessary for the propagators to use all the available wood produced, without reference to the bearing-habit or constitution of the bushes from which the wood was taken. Now, if a hundred cuttings are taken from a bush that seldom bears, we have simply started 100 new bushes with a similar tendency; and if 100 are taken from a bush that always bears, the bearing-habit is likely to be transmitted to the new bushes.

If the differences in the buds of a tree can be propagated by grafting or budding, or by other means, then here is a principle on which to begin the systematic improvement of existing varieties. The propagator has only to form a clear idea of the type of Baldwin or Spy Apples he desires, and then to select through each generation buds from branches which bear Baldwins or Spys approaching his ideal. There are numerous examples of bud variations in the various strains of Baldwins, Greenings, or Crawfords. These strains are simply bud variations induced by climate or other causes. In Virginia the Albemarle or Newtown Pippin differs from the New York Newtown. In Oregon the Apple has slight ridges around the stem, and the fruit is oblong in form; while in New South Wales, the ridges are so pronounced that the Apple is called the Five Crowned Pippin.

Horticulture in its variety making and improving is not founded on any law which assures improvement in the organic world. Nature builds up her types gradually, but all the more surely, by the selection in each generation of variations which give the survivors some slight advantage over the individuals already existing. This process has been called by DARWIN, 'Natural Selection;' by SPENCER, 'The Survival of the Fittest;' and recently by Prof. BAILEY, 'The Survival of the Unlike,' all of which are synonymous expressions.

Yet we are constantly endeavouring to build up horticulture in the very way that Nature condemns, namely, through the promiscuous production of new forms or new seedlings. A seedling variety is discovered, not produced. It is not founded on a law of organic progress. A bushel of seed is sown, but the sower can only hope for something good to turn up. He never knows that an improved variety will appear, nor has he reason to expect it, because the operation rests on the element of chance, not on the laws of plant evolution.

I do not wish to condemn the production of seedlings from judicious crosses of selected parents, because in that process are included the intelligence of the operator and a knowledge of the laws of plant-crossing; but I do want to emphasise the fact that horticulture is old enough now to rest on definite laws of its own, and that those laws should act in conformity with the principles underlying the evolution of the vegetable kingdom.

It seems strange that the slight differences which appear in the buds of a tree should not have formed the basis for the systematic improvement of orchard varieties.

Horticulturists have never made a systematic attempt to improve a variety after it once appears, or even to maintain its standard of excellence, for improvement has ever been looked for through new varieties. The present system of propagating fruits in the nursery or on the farm, as followed by most fruit-growers, tends to deteriorate a variety. Buds are selected from bearing trees or non-bearing trees, or from nursery trees. The effect in every case is to transmit the tendency already existing in the bud to the new tree, and as a result there are orchards scattered all over the country in which are many trees, that, even with the highest culture, will not pay the interest on the land they occupy. Nine orchards in every ten have been propagated with no more care in selecting the buds from which the trees came than was exercised in the propagation of the Fay's plantation already mentioned. On a large fruit farm with which I have been connected, this principle is considered so important that every young orchard is top-worked with buds from trees which have shown a bearing habit for years."

SNOWDROPS.

THESE favourite flowers of the earliest period of the year have come with their wonted freedom of bloom; they are ever attractive, whether grown in the grass, where they look their best, or in the border or rock-garden. They have a copious literature nowadays, and were one to begin with quotations from the poets, it would be difficult to make a selection. One is not at this time disposed to treat of these chaste flowers from other than a gardening point of view, and without reference to their place in literature. I have recently spoken of the autumnal varieties of Galanthus nivalis, so that these do not require to be mentioned further at present.

The varieties of Galanthus Elwesii are very handsome, and it says much for the peculiarities of places that some find this fine Snowdrop do very indifferently in their gardens. G. Elwesii varies very much in its different habitats, and some collected plants are inferior in size to the ordinary Galanthus nivalis; while others, again, are greatly superior. The writer has previously spoken of Mr. Whittall's new Giant variety, and he can only add to what has already appeared by saying that it far surpasses in vigour anything of its kind. In growing it, it will be found that a rather strong soil, not too dry, will give finer results. The writer does not find G. Elwesii any more subject to the destructive fungus, which works such havoc among collections of Snowdrops, than any other species, so that he hopes to be able to grow this giant variety for long.

The Cassaba variety, which is one of great beauty, has, however, nearly all disappeared; and G. E. unguiculatus has also suffered considerably—while other and weaker-looking stocks have been unaffected. I think the varieties of G. caucasicus, including G. Alleni, are particularly subject to the attack of this mildew. So far as I know, we have no remedy for this scourge of the Snowdrop, and one is grieved to see it make its appearance year after year. I understand that gardens in low-lying situations are more subject to it than others in a more elevated and airy position.

Another Snowdrop, which is well worthy of extended growth, is G. plicatus; but this has, unfortunately, a bad habit of dying off without apparent cause. One does not usually see in this species the presence of the mildew which attacks the others, but it is not very satisfactory otherwise. The Straffan variety, which is the one mentioned by the Rev. David R. Williamson in the *Gardeners' Chronicle* of February 18, is more robust than the type.

Some fine Snowdrops raised between G. plicatus and G. nivalis are in cultivation. Among these I should place a handsome Snowdrop named G. plicatus Fraseri; this is a good grower, with large flowers, and with partially plicate foliage. I have several other Snowdrops between G. plicatus and G. nivalis. Some of these were raised by the late Mr. Wm. Thomson, of High Blantyre, Lanarkshire, and among his are a few of remarkable beauty.

The Rev. C. Wolley-Dod speaks highly of Galanthus Imperati, the fine Italian Snowdrop, which is, however, not so free from fungus with me as it is at Edge Hall. The finest form of this Snowdrop is that known as Atkinsii, which has, at times, the defect of showing an additional segment, which gives the flower a peculiar appearance when fully open. There is something quaint and peculiar-looking in Galanthus Scharloki, with its divided spathe and green-tipped flowers. Among other rare bulbs I have had from Mr. Allen are some seedlings from Scharloki, all giving flowers bearing some resemblance to those of the type, but differing also to some extent.

Galanthus byzantinus, apparently a natural hybrid between G. plicatus and G. Elwesii, is variable in flower and leaf; the flowers generally resemble Elwesii, but the leaves are more or less plicate. This Snowdrop has no more immunity from the fungus than any other I have.

Galanthus ikariæ is a very ornamental Snowdrop, with its broad arching, bright-green leaves, and its white flowers. When the latter first appear, the leaves have not attained their full length, and it is only afterwards that this Snowdrop shows its full character and beauty. It may well be placed among those of the highest rank; it is better and hardier than what is usually known as G. latifolius.

Some of Mr. James Allen's seedling Snowdrops are very beautiful. One understands a good many of them to be from G. nivalis, but in a number there is probably a strain of some of the other species. Among these seedlings, I think none can surpass Magnet, whose large flowers hanging lightly from their long pedicel look remarkably graceful and pretty. Valentine is another pretty flower; and Aurora, besides being early, is of good form and habit. Those of us who have raised Snowdrops from seed can alone realise how small is the proportion of flowers equal to those named.

The yellow-marked Snowdrops are few in number, scarce, and, unfortunately, not too robust. Both of the known single varieties, G. lutescens and G. flavescens, were found by that indefatigable grower, Mr. W. B. Boyd, in Northumberland gardens; the latter is the more robust and brighter of the two. Last year I had flowers sent me of a double yellow variety, which was growing in a garden in Cheshire; the ovary and markings, as in the cases of G. lutescens and G. flavescens, were yellow. I had afterwards, through the kindness of the owner of the garden, some bulbs sent me, but they are not yet open, and from their appearance I have some doubt whether they may not have returned to the normal green of the markings.

One has by no means exhausted the subject, but possibly it may be well to conclude with a reference to the double varieties. A noteworthy addition to these has been Mr. Allen's Charmer, a large flower, very double, and with fine outer segments; this is quite distinct from the ordinary double form. Another seedling with double flowers has not yet bloomed here, but it will, one hopes, give us its flowers in a few days. These varieties of the Snowdrop do much to enhance our garden pleasures, and show us how the simplest flower may be altered by patience, skill, and care. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

A PRUNING COMPETITION.

The competition took place on February 16, at Woodsfield Farm in a 10-acre orchard of flourishing young standard Apple and Pear-trees, about ten years planted, and as this special farm had been in hand some years, the trees were in fair condition.

Two classes were arranged, class A being for farm hands only; class B open to all; prizes of 20s., 10s., and 5s. being offered in each class; the conditions being:—"To the person who shall prune with knife, saw, chisel, or other suitable tool, in not more than three hours, four young trees, in the best manner. Time also to be considered." Unsuccessful competitors to receive 1s. each.

The trees were previously selected, as nearly equal in size as possible, by an appointed steward—two Apple and two Pear-trees for each competitor, with numbered cards attached, in consecutive order, corresponding numbered cards being prepared and kept for balloting purposes.

Sixteen competitors answered to the roll-call. The ballot took place, each competitor drawing a card, which identified his lot of trees. At a given signal, each pruner commenced his task, and as soon as he had finished his work, he returned his identification card to the steward, who registered the time received, the card being ultimately handed over to the judges for point value. The judges carefully watched the pruners at work, summing up at the finish. Various styles of pruning were adopted, and the primitive chisel was in evidence in one case.

The judges appointed were Messrs. Coleman of Eastnor, and Ward of Stoke Edith; the former, through indisposition, being unable to attend, Mr. Mullins, of Eastnor, was substituted. The work of many was of superior character, and no little difficulty was found in making the awards, and extra prizes had to be granted in both classes. Some of the competitors were in too great hurry to finish, and did not take sufficient pains for neat, skilful work; others, again, failed to smooth the saw cuts. One gratifying feature was that nearly all the prizes were taken by comparatively young men—those who had closely followed up the instructions given at the Club's demonstrations and lectures.

The event created considerable interest throughout the radius of the organisation, and a goodly number of anxious spectators watched the proceedings throughout, and waited to hear the results.

James Lea took 1st in class A; 2nd, A. H. Chew. J. Bosworth took 1st in class B; 2nd, H. H. Peel. After so successful an experiment, doubtless the competition will be repeated and extended in future.

It should be mentioned that the Club awards prizes for the best-cultivated gardens, also for allotments, hedging, ploughing, mowing, reaping, rick-building, Hop-pole pitching, and stringing, sheep-management, long-service, and other rural pursuits; besides which, an annual show of agricultural and horticultural productions is held, and 10,000 persons attended last year's show. *W. Crump, Madresfield Court.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA TRIANÆI WEST BANK HOUSE VARIETY.

So remarkable is this brightly-coloured variety that the suggestion has been made independently by several orchidists who have seen it that it is a natural hybrid between C. Trianæi and C. Warscewiczii, and the striking resemblance which it bears to some of the forms of C. × Hardyana gives reasonable excuse for the suggestion, though combination in wild specimens is not generally supposed to be possible. Nevertheless, the flower kindly sent by the owner of the plant, J. Leemann, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), bears a considerable resemblance to the garden hybrid Cattleya × Ballantiniana (Trianæi × Warscewiczii) described by Professor Reichenbach in the *Gardeners' Chronicle*, March 2, 1889, especially in the peculiar form of the lip, its wavy margin, and the rich colour of the whole flower. The sepals, petals, side-lobes, and margin of the lip are bright purplish-rose, the disc orange coloured, and the front-lobe of that dark velvet-like ruby-crimson seen in Cattleya × Hardyana, to which the whole flower bears a resemblance.

Lælio-Cattleya × Gottoiana.

Occasionally a plant of this pretty natural hybrid is imported with Lælia tenebrosa and Cattleya labiata, between which it is doubtless a natural hybrid. No two of the plants imported have borne flowers alike, and even in their form there is variation. A flower of a very finely-coloured variety of it, in shape approaching closely a good form of Lælia tenebrosa, is sent by J. Leemann, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge). The sepals and petals are rose coloured, with a yellowish tinge in the lighter parts, the lip bright, light purple, with dark crimson veining, extending from the base, the portion in front of the column bearing on each side an oval blotch of primrose-yellow.

Odontoglossum Sanderianum.

This pretty species was described by Reichenbach who asserted that it was related to O. nevadense, but our later experience of the plant in gardens shows that it is a singular compound of O. constrictum and O. gloriosum, approaching the former species in some characteristics of its flowers, and the latter in their larger size and the more erect growth of the inflorescence. A pretty example of the flower has been sent to me by Mr. Garnett, gr. to R. G. Fletcher, Esq., Mount Harry, Withdean, Brighton. These flowers measure 2½ inches at their widest part; the ground colour is pale yellow, with showy red-brown markings, and the lip is white, with one purple blotch in the front of the callus. *J. O'B.*

ORCHIDS AT GLEBELANDS, SOUTH WOODFORD.

The fine collection of Orchids formed by J. Gurney Fowler, Esq., shows remarkable progress. Two new Orchid-houses, beside a large orchard-house, are in course of construction. The varieties of Lælia anceps have grown well, and bloomed profusely, some of them, such as L. a. Stella, L. a. Sanderiana, L. a. Schroderiana, &c., are still in bloom. Cattleya citrina thrives in the same house with these, and many of the old plants are well set with flower-buds. In the same house are two fine specimens of Dendrobium Wardianum, covered with blossoms. A number of large specimens of varieties of Cœlogyne cristata, and forms of Lælia albida are flowering finely.

In an adjoining span-roofed warm-house are grown the choicest of the Cypripediums, several strong plants of C. Lawrencianum Hyeanum, C. callosum Sanderæ, and many rare hybrids, named and unnamed, were remarked. In bloom are the fine C. × Miss Louisa Fowler (Chamberlainianum × insigne var.), recently shown by Mr. J. Gurney Fowler, which is the most handsome of the C. Chamberlainianum crosses; C. × Chamberlaino-Leeanum, pretty, but not so showy as the former; C. × Chapmani, a fine C. Rothschildianum with two flower-spikes, C. × Lathamianum, C. × Godseffianum, C. × A. R. Smith, C. × Lord Derby, some pretty plants of C. bellatulum, C. concolor, and others of the class, all of which do well here. The collection of Selenipediums was remarked growing strongly, and sending up numerous flower-spikes.

A number of varieties of Cypripedium insigne, of which there is a good collection, were noted in an intermediate-house; C. i. Sanderæ, which is growing strongly, is one that is much prized. In the same house a collection of Cymbidiums is grown, and one very vigorous plant of the finest form of C. Tracyanum; strong specimens of C. Lowianum, promising well for bloom, and the first of the C. grandiflorum, furnished with a strong flower-spike, the flowers of which have not expanded, as is usual with it when flowering in the winter, were remarked.

The range of span-roofed houses contains a collection of hybrid Lælias and Lælio-Cattleyas, some of which have not yet flowered. The Veitchian hybrids of Lælia Perrini, whose beautiful flowers appear in the winter, are favourites, as are also Cattleya × Mantini nobilior, C. × Miranda, Lælio-Cattleya × Nysa and its varieties; C. × Lady Rothschild, and other crosses of C. aurea. Of C.

aurea itself there are some nice healthy specimens, as likewise of other species, the floral display being chiefly due to forms of C. Trianæi, one specimen of which, about 4 feet across, is bearing a large quantity of flowers. Some excellent C. Percivaliana, and a few others were in flower.

In the adjoining division a magnificent plant of Vanda Sanderiana stands on the middle stage, which was once shown with the unequalled number of twelve flower-spikes, bearing altogether 137 flowers. The plant was not allowed to carry flower last year, and this year it shows great vigour. Near it a noble specimen of Arachnanthe (Vanda) Lowi, in splendid condition, was noticed; and on the side-stage is a small collection of species of Phalænopsis, all of which have been reared from small imported plants. They have steadily increased in strength. Recently they were removed from a small house, in which they had long been grown, and for some time Mr. Davis, the gardener at Glebelands, was anxious about them; but they are now safely over the dangerous period. The same remark applies to a number of Miltonia Roezli, which were removed at the same time, which are now in splendid condition, and showing finely for flower. Other notable plants in quantity consist of Lælia harpophylla, which thrives at Glebelands; some vigorous Miltonia vexillaria, and a fine collection of Odontoglossums, which are housed very commodiously.

It may be said here that Mr. J. Gurney Fowler, besides an enthusiastic Orchid amateur, is much interested in Roses and fruit-growing, both indoors and out; and in these and other matters, his gardener is very successful.

MUSHROOMS SPOILED BY MOULD.

THAT nameless pest to cultivated Mushrooms, referred to by Mr. Page, and described at some length by Dr. M. C. Cooke, on p. 61 of the *Gardeners' Chronicle* of January 28, has been familiar to the cultivators of the Mushroom in Britain for many years. It has played havoc with many promising crops, particularly in confined places, where the air remains stagnant and at an even temperature for weeks, or months on end, such as in underground cellars, and badly-constructed Mushroom-houses, as well as in caves and tunnels, in which the atmosphere is seldom moved by a current of fresh air. In places like these, where the air is practically stagnant, and maintained in the close muggy condition, which is popularly supposed to be the best for the culture of the Mushroom, if the mouldy pest once gets a settlement it rapidly multiplies, and the atmosphere becomes so contaminated with its spores, germs, filaments, or whatever term they may be known by, that it requires the adoption of extreme measures to clear the place of its malignant influence, and sweeten the air so that Mushrooms may again thrive in it.

It is true, that Mushrooms can be grown to perfection for a time in a close and slightly moist atmosphere, in places almost hermetically sealed from the fresh air of open day; but sooner or later some fungoid disease, or pest, breaks out, ruins the crop, and causes no end of trouble and expense before Mushrooms can be again grown in such air-contaminated places. The doors by which they are entered are often the only means of ventilation, and they are invariably kept closely shut when the person in charge is not passing in or out, until the atmosphere becomes as foul, if not so evil-smelling, as that of the notorious "Black Hole of Calcutta!" The natural earth-heat is generally sufficient to maintain those places at a temperature suitable for the growth of Mushrooms, and no artificial heat is applied to raise the temperature and at the same time cause a movement in the air, nor is a ventilator opened to allow the foul air to escape, and fresh, clean air, to enter. Such are the places in which the mould-pest is found doing its work with deadly effect.

In properly constructed Mushroom-houses, efficiently heated and ventilated, so that fresh air can be regularly admitted, low down and close to the heating-apparatus, without causing cold draughts, and the vitiated atmosphere allowed to escape, through ventilators near the roof, the pest will seldom, if ever, appear. Should it, however, put in an unwelcome appearance, it can be exterminated by clearing out all the materials of the Mushroom-beds, and thoroughly cleaning the house by the usual means, to destroy any germs that may be lurking about. A strong, dry heat, should then be raised by the heating-apparatus, to cause a free circulation of air in the house, which will be effectually purified thereby in a few days. With clean, fresh materials, that have been carefully prepared and kept from being contaminated by the mouldy old beds, new beds may be made up immediately, which will produce vigorous crops free from disease, and remain clean and productive for the natural term of their existence.

In the meadows where the Mushroom grows naturally in the open air, the mould is very rarely met with, or it may generally be traced to cultivated Mushrooms in the near neighbourhood. Its appearance on the open-air beds is mainly due to the same vitiating causes as those which induce it in close cellars and other confined spaces. The straw litter, mats, and other materials used for covering the beds, maintain the air on their surface in a stagnant condition, and if the mould-pest or its germs are about, they soon find their way to the delicate Mushrooms just bursting through the soil, insert their threads in them, and the fungus-infested Mushroom quickly becomes a rotten mass. For a while, many of the Mushrooms may escape attack, and grow to a full size, perfectly clean and wholesome; but eventually, as the materials of the bed become exhausted and the crop weakened, every Mushroom will be cut off with the disease. The remedy in this case is to thoroughly char or burn the mould-infested materials to get rid of the germs, and move the site of the open-air bed to a clean spot, as far from the old one as may be practicable and convenient.

A notable instance of the virulence of the disease, when once it has got firmly established in a medium suitable for its development, has been in evidence for the past few years in the extensive Mushroom-growing establishment in Edinburgh, where its ravages have caused much loss to the enterprising managers, and the pest has till now completely baffled every practicable means to extirpate it. In the disused Scotland Street tunnel of the North British Railway, running northward from the Waverley station at a considerable depth below the streets of the new town, the proprietors have carried on the culture of the Mushroom for more than a dozen of years with great success. Marvellous crops of the finest Mushrooms were gathered and marketed from the beds in the tunnel, until the mould-pest made its appearance within the last few years; and although the Mushrooms are produced as abundantly as ever, they are soon attacked by the fell disease, and utterly ruined for any useful purpose.

On the occasion of a recent visit, it was saddening to see the wreck the disease was making of the splendid crops of Mushrooms coming on in succession along the whole length of the tunnel. Entering from the north, or Scotland Street end, a line of railway runs up the left side, and the Mushroom-beds occupy the largest half of the breadth of the tunnel on the right. They are formed across the space, with a foot clear between them for working, and of a uniform size and shape, about 3 feet wide at the base, and 1 foot 6 inches wide at the top, and about 2 feet 3 inches high. They are made of well-prepared droppings, collected from cavalry and livery stables, with the long litter shaken out of them. The droppings, when ready, are firmly packed inside a wooden frame of the shape of the bed, but without top or bottom—a speedy method of making-up the beds, and the sloping sides allow the frame to be easily lifted off when the job is finished. When the beds arrive at the proper temperature they are spawned, and then covered with about an inch of fresh earth in a moist, but not wet, state, and beaten smooth and firm, in the usual manner, with the back of a spade. They are then covered over with a few inches in depth of the long stable litter shaken out of the horse-droppings, which remains upon the bed until the first of the crop is ready to gather. In the close, moist atmosphere and even temperature of the tunnel the beds keep their moisture for a long time, and seldom require to be watered. They begin to bear in from four to six weeks, and when they escape the mouldy disease, they go on for months producing heavy crops of Mushrooms, noted in the market for their thickness of flesh and high quality. When the mould-pest is about, it begins its ravages within a week or two, and spreading rapidly over the crop, it soon renders the Mushrooms utterly worthless.

The beds in bearing were seen literally white with Mushrooms, although the sound crop is gathered every day for market; and even where the crop was attacked by the mould, and converted into a morbid mass of diseased and rotten Mushrooms, a few vigorous stragglers were pushing their heads through the diseased and decaying mass, and developing into fine specimens, perfectly sound, and free from all signs of the disease—a notable instance of "the survival of the fittest!" The proprietors have tried hard by every available means to eradicate the pest, cleaning and whitewashing, at much cost, the whole tunnel (about 1200 yards long, 8 yards wide, and 6 yards high, substantially built of brick and dressed ashlar), but with no permanent or satisfactory result.

Sulphur fumes and flowers-of-sulphur, which are generally fatal to fungoid organisms, were employed, and other so-called "remedies" were applied to the droppings, soil, surface of the beds, and the air, floor, and walls of the tunnel, but all were of little service in lessening the attacks of the pest. It might be weakened for a short time, but it has always broken out again as virulently as ever, as soon as the air in the tunnel assumed its normal stagnant condition. The tunnel is on an incline of about one in seventy-five, but the only ventilation is at the ends, which makes the process of clearing out the vitiated air all the more difficult. The proprietors have, therefore, now resolved to clear out everything from the tunnel, and to thoroughly clean it, and allow it to lie fallow, to purify the air, for a couple of seasons, in the hope that they may be able at the end of the period to again secure fine crops of sound Mushrooms.

In the meantime, they have acquired the use of the tunnel through Dundee Law, formerly used by the Dundee and Newtyle Railway, in which to carry on their business; and it is proving as great a success for the purpose as the Edinburgh tunnel was before the appearance of the disease in it. The result of the extreme measures adopted by the Messrs. Paton to clear the Edinburgh tunnel of the fungoid infection will be watched with deep interest by all concerned in the culture of the Mushroom. What are our cryptogamists doing, who have so long neglected to solve the life-history of this inveterate foe to the Mushroom? Shall we have to go to German scientists for its history and name? *D. M., February* 8. [When the Mushroom-growers can afford to adopt the methods advised by the cryptogamists, and dispense with the foul materials they at present employ, then they will be able to grow Mushrooms without admixture of other fungi. ED.]

CONTINENTAL NOVELTIES.

MESSRS. HERB & WULLE, of Naples, offer a series of new hybrid Centaureas, under the name of Centaurea imperialis (Hort. Herb.). C. imperialis is stated to be a cross between the violet C. moschata and the white C. Margaritæ. The plants are alleged to attain a height of 5 feet, and to produce sweet-scented flowers of varying shades of colour. These last in a cut state for ten days, so that the plants are very serviceable for decorative purposes. The same firm also announces the issue of Tomato Wonder of Italy, which produces dense clusters of oblong cylindric fruits of a red colour.

Messrs. V. **Lemoine et fils**, Nancy, offer various novelties among Abutilons, Fuchsias, zonal Pelargoniums, Pentstemons, Petunias, and Verbenas. They also describe a form of Glyceria spectabilis, with pale yellow stripes to the leaves.

Pear Frau Louise Goethe.

A new variety, raised from a pip of Bergamotte d'Esperen, in the Horticultural School of Geisenheim in 1882, and fruited at that establishment in 1889 for the first time. It is described as being an excellent winter Pear, keeping good till March. The tree is fertile, and bears Bergamotte-shaped fruits 3¾ inches high, and 3¼ inches in lateral diameter. The rind is thick, coarse, dark green, and covered with fine warts, becoming a clouded yellow when ripe, with russetty patches. The flesh is clouded yellow, sometimes salmon-coloured, juicy, sweet aromatic, with an aroma reminiscent of the Orange. Figured in the *Bericht der Geisenheimer Lehranstalt* for 1897-98.

Pear Doyenné à Cinq Pans.

Raised by M. Herault, and described in the *Pomologie Française* as a cross between Duchess of Bordeaux and Winter Doyenné, effected in 1879. The tree is of regular growth, vigorous, and very fertile; the fruit 2¾ inches high and broad, smooth, yellow rind, spotted and flecked with fawn. It is ripe in October and November. The flesh is fine, melting, juicy, sweet, with an aroma of Pelargoniums. "*Wiener Illustrirte Garten Zeitung*," *for January*, 1899.

SPONTANEOUS HYBRIDS.

In the flower-garden at Edge Hall weeding is performed with great discrimination, and a large proportion of self-sown seedlings is allowed to grow to maturity. As a consequence of this many spontaneous hybrids have sprung up in the course of years, about which it is proposed to give some particulars. By hybrids, I mean plants produced by the crossing of distinct species; but in adopting this definition, I must observe that there are some cases where plants considered only varieties of the same species refuse to cross, and other cases where species, reputed to be distinct, are so closely allied that the result of their crossing can hardly be called a hybrid.

It has sometimes been suggested that new species owe their origin to hybrids; but careful observations have not been recorded sufficiently long to confirm or to refute this theory. It must be assumed, however, that to make a species, a plant must be able to reproduce itself constant to the parents from seed; and I have never yet found a true hybrid capable of doing this. Many hybrids are entirely barren, others are sparingly fertile; but then the progeny of these from seed is never constant; they often revert to one or other parent in two or three generations, causing the suspicion that seed when produced by a hybrid is the result of fertilisation by one of the parents. In other cases the seed of hybrids produces an ever-varying race; but none of these varieties have ever proved capable of being fixed so as to reproduce a constant race—at least, I have never seen one so capable, or received authentic information of one. It is true that I have found some closely-allied species having distinct and perhaps distant geographical areas, which, when cultivated together, seem to coalesce from seed into one, varying in its characters between the two, and retaining its fertility without definitely reverting to either. I may mention as instances Scilla nutans and S. hispanica, Papaver orientale and P. bracteatum, Inula Hookeri and I. glandulosa, Chrysanthemum maximum and C. pallens, and several Campanulas of the rotundifolia group. But the differences between these crossed varieties are not greater than are frequently found within the limits of a species. It seems to me far more in accordance with observed facts to believe with Darwin that a species gradually changes in long periods by natural selection of the fittest individuals within itself than to refer the origin of new species to the hybridisation of dissimilar plants.

It may be asked, when I describe hybrids, how do I know that they are hybrids, and not varieties, owing their abnormal characters to cultivation? I reply that in many cases these characters are distinctly intermediate; in others, where I have no doubt whatever about the seed-parent, the pollen-parent declares itself by being almost exactly reproduced in the hybrid, so that it could not be recognised as a hybrid by casual observation. In other cases, where the seed-parent is certain, the pollen-parent is uncertain, because there may be more than one likely to have produced the result.

It may be stated, as a general rule, that hybrids follow the duration of life of the shorter-lived parent; annuals or biennials crossed with perennials being annual or biennial; but I shall notice instances which seem to be exceptions.

As for the duration of the stock of a hybrid, I have not attended long enough to the subject to say much from personal experience. I believe the date at which the well-known hybrid Lily called L. testaceum was raised, is recorded. Some hybrids show greater vigour of constitution than either of their parents, whilst others are decidedly delicate, and difficult to keep. As regards bulbs, the tendency of Narcissus to form hybrids is well-known, and I shall speak of their inconstancy from seed later. Though thousands of seedling Crocus come in my garden, I have never seen a suspicion of a hybrid. Mr. G. Maw, in his monograph, remarks upon this characteristic. I may say the same of Colchicum, some of which grow and mature from seed here freely. Other plants which flower simultaneously side by side, yet seem always to come true from seed saved at Edge, are all Anemones, as A. alpina, and A. sulphurea (though thought to be only varieties), A. blanda and A. nemorosa, A. hortensis and A. coronaria; and so with some other genera. Most of the hybrids I shall mention have appeared spontaneously in Edge garden; but there are others which I have cultivated for long, concerning which I shall have something to say, especially in the genus Campanula.

In speaking of the reasons against supposing hybrids to have been the origin of new species, I have not discussed the case of a fertile hybrid taken from its surroundings and isolated. I have never heard of such a case producing seed which was true to the parent. At the same time, I have known many instances in which wild varieties of a colour different from the type have produced, when isolated, many generations of seed constant without a reversion to the typical colour. I have myself had a wilderness full of white Malva moschata (perennial), white Verbascum Blattaria (biennial), and white Geranium Robertianum, for twenty years, though it might have been thought that the innate tendency to assume the typical colour would sometimes have prevailed. *C. W. Dod.*

(To be continued).

EARLY SWEET PEAS.

In this district in Scotland, it is impossible to bloom Sweet Peas earlier than July; and in a late season I have known it to be August before the plants were in full bloom. By sowing seeds in pots during January, however, and encouraging germination by a little warmth, I have known flowers to be produced in May. I prepare about 300 pots, the seeds being sown singly in the case of new varieties, and the older sorts in triplets in 3-inch pots. Where mice abound, it is necessary to cover the pots with squares of glass until the seedlings are well up, when the plants are removed to a cooler house. I have occasionally repotted some into 6-inch, and again into 9-inch pots, and these produce much stronger plants, and they are a little earlier than those that are not re-potted. It is a commendable practice to pursue where single plants are set out in borders, and in small gardens where there is but little space, these single plants, one or two of each variety, produce an enormous quantity of flowers of the finest quality.

The greater number of our plants are grown at 9 inches to 1 foot apart in lines. They not only bloom early, but by constant cutting they continue in flower until cut down by frost. When the earlier buds appear, the tip of the leading shoot is removed, and a still earlier and finer bloom thus induced. When the top of the sticks by which they are supported has been reached, the tips of the shoots are again removed, and the rule is aways to check upward growth. A large southern grower who cultivates Peas under glass, told me he thought of giving up their cultivation solely on account of their rampant habit, and when I mentioned close pinching as a remedy, it was received as quite a new idea.

The varieties of Sweet Peas in cultivation are now very numerous, but I have had opportunities of testing all the English varieties at present in cultivation, and of the American sorts; though I have not grown them all, I have been able to inspect every variety up to last year. For my own part, I consider American introductions a long way in the rear of the best of Mr. Eckford's varieties, and so leave them out. I still admire a few of the older varieties, which for cutting are unsurpassed. Of such I may mention Princess Beatrice, Primrose, Orange Prince, Lady Beaconsfield, and Countess of Radnor, each of which, though small in size of bloom, are yet so beautifully coloured that they are indispensable. The later large or giant-flowered varieties, when well cultivated, with their long flower-stalks and greater number of flowers to a stalk, will, however, most generally command attention. A selection, comprising those with bright colours and others of distinct shades, will embrace Lady Mary Currie, strong habit and very bright flower, orange-pink in shade; Chancellor, somewhat lighter in colour, and quite distinct; Duke of Sutherland, a very telling indigo-blue, shaded; Prince of Wales, brighter than Her Majesty, but not displacing the latter; Lady Nina Balfour, a peculiar grey-mauve, very beautiful; Lady Grisel Hamilton, by far the finest of the light blue varieties. The seeds of the variety last-named unfortunately belong to the type of Countess of Radnor, and being difficult to ripen, the seedlings come up sparingly. I am not quite sure whether this variety is in commerce. Salopian and Mars supersede all other red and crimson varieties. The former is, I think, the better variety. Queen Victoria, creamy, sometimes inclining to yellow, is vigorous, and possesses a very large bloom and long stalks; Crown Jewels is of the same type, but suffused with salmon; Prima Donna is in pink shades, perhaps the most lovely; Royal Rose is a deeper tint of pink, but not so attractive. In Captivation we have one of the most beautiful of the dark-coloured varieties. It is impossible to describe the metallic lustre of the rosy-purple flowers. It is also one of the wrinkled-seed type, and difficult to increase and even to cultivate. Stanley is unsurpassed in the dark maroon shade of colour which it possesses. Among white varieties, Emily Henderson is a favourite flower, the tint of green for which it is remarkable being so pretty. Of the newer whites, Blanche Burpee is now well known for its good qualities, but Saidee Burpee is even better, the petals being more stout, and the white more pronounced. Duchess of Sutherland is so nearly white that it may be here recommended for the pearly gloss of its petals; it is a very lovely flower. I will add to those already named, Captain of the Blues; and though many fine varieties are left out of the above list, it includes a very excellent selection. *R. P. Brotherston, Dumfries.*

ADIANTUM FARLEYENSE VAR. ALCICORNE.

OF the numerous hybrid varieties of Maiderhair Ferns there are few more interesting than the above, of which we give an illustration (fig. 51), from fronds received from Mr. H. B. May, who exhibited it at a recent meeting of the Royal Horticultural Society. Mr. May has grown it for a number of years. We are unable to give its actual origin, but it appears to have been introduced upwards of fourteen years ago, and was first distributed by Messrs. R. Smith & Co., of Worcester. It would be interesting to know how it first originated. There is little doubt but that it is closely allied to Farleyense, differing only in having the pinnules cut down into unequal narrow segments, and like the type it does not produce fertile fronds. Apart from its distinct characteristics, it is worthy to be included in all collections on account of being the only known variation of the most beautiful Adiantum in cultivation.

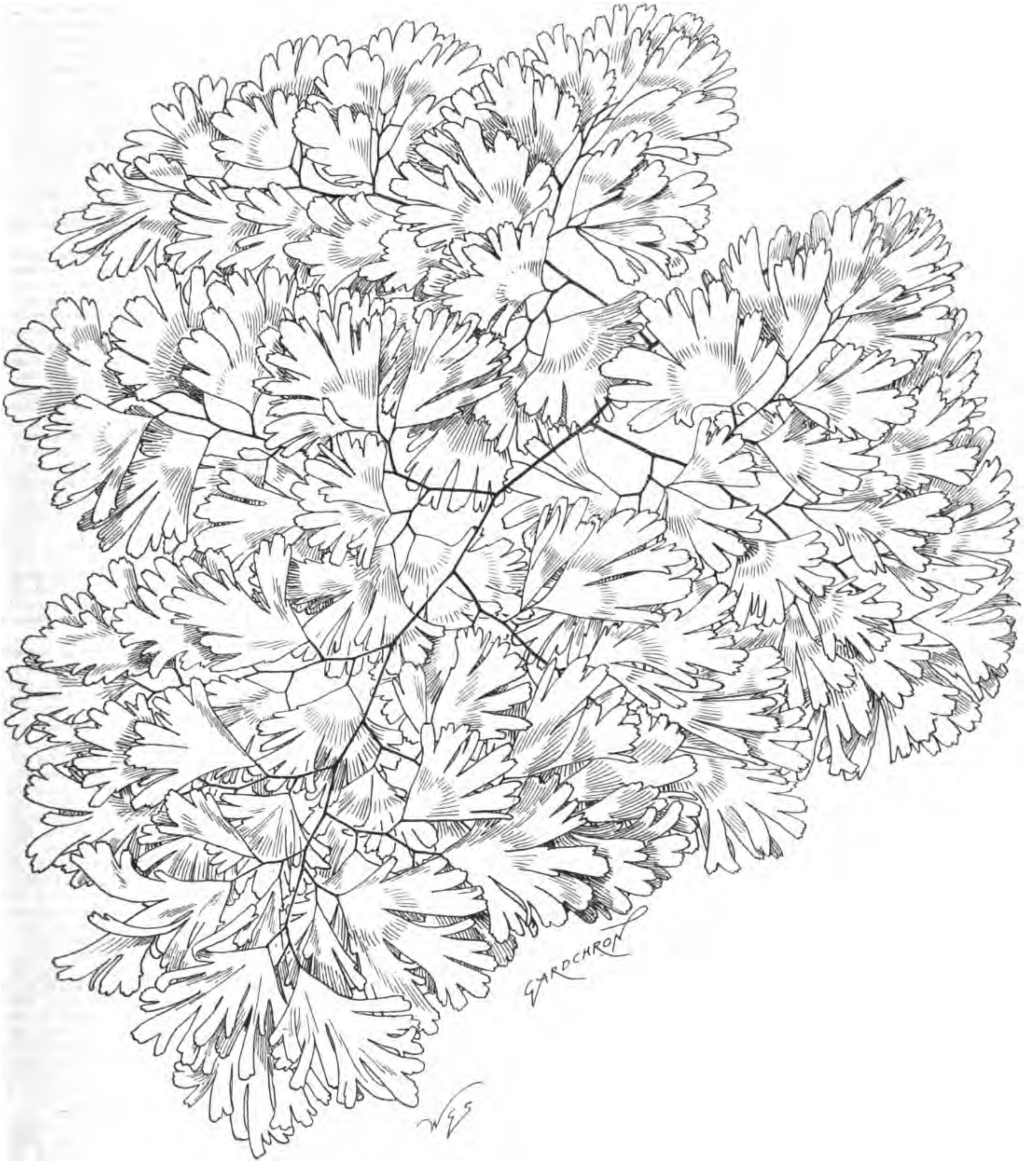


FIG. 51.—ADIANTUM FARLEYENSE VAR. ALCICORNE.

PLANT PORTRAITS.

CHINESE PRIMROSES, fringed-petalled varieties *Revue Horticole*, February 16.

CRINUM FIMBRIATUM.—Perianth with narrow white segments, deeply striped and suffused with rose; *Garden*, February 11.

FUCHSIA CORYMBIFLORA; *Garden*, February 4.

LOBELIA RIVOIREI ×, a rosy-lilac-flowered variety, the descendant of L. Geraidi, itself a cross between L. cardinalis and L. syphilitica. Of the numerous hybrids raised from this same original source, some are hardy in the severe climate of Lyons, others are more tender (see *Gardeners' Chronicle*, vol. xxiv., p. 233, fig. 64); *Revue Horticole*, February 1.

PASSIFLORA INCARNATA, *Meehans' Monthly*, February.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Onions.—The main Onion crop should be sown whenever the land is in a workable condition. The ground for this crop should, whenever possible, be manured and dug in the early winter, and if this was done, let the surface be lightly dug over early in the morning; when dry enough, tread upon or roll, and afford a heavy dressing of fresh soot, raking it in at once. The drills may be drawn at 1 foot or less apart, and half-an-inch deep. If charred soil or garden rubbish, or wood-ash, are available, the seed-drills, after the seed is sown, may be partly filled with one or the other. In view of depredations by sparrows and chaffinches, let the seed be damped, and then shaken up with powdered red-lead. Although the Onion does best in a firm soil, some consideration must be given to the nature of the soil, not trampling it more than can be helped, or endeavour to give it a very smooth surface if it be adhesive, as it will be sure to crack under sunshine, and render a very early use of the hoe necessary. If the land is infested with the Onion-maggot, the seed should be sown in boxes, and the young plants transplanted; this method being the best preventive.

Parsnips.—Let the ground for this crop be selected for its great depth and mellowness, and let it be stirred about with digging-forks, and when fairly dry make the surface level and smooth preparatory to sowing the seed. The crop may be grown in beds 4 to 6 feet wide, with alleys running between, or the alleys may be discarded. The seeds should be sown in drills less than 1 inch deep and 16 inches apart, the seed being dropped in twos or threes at 8 to 12 inches apart in the rows according to the variety, and fill in the drills lightly, making all smooth and neat. If extra large roots are required, and soil is not all that one could wish, make holes with a large dibber; fill these with a mixture of rich soil, and press a few seeds into this, and cover. The soil that is put into the holes should be made quite firm.

Celery.—For a very early supply, a pinch of seed may now be sown in seed-pans, standing these in mild heat. The main sowing should not be made before the end of the present month. Sandringham White, Major Clark's, Sulham Prize, and Standard Bearer are good varieties for present sowing. Let the soil in the pans be moderately rich, and the seed sown thinly on it, covering but lightly with soil.

Brussels Sprouts.—A small sowing may be made for furnishing plants for an early supply. A variety that is productive of small solid sprouts is preferable. The seed should be sown and placed in warmth of 50° to 60° to germinate, and when that stage is reached, the seed-pans, without the least delay, should be placed close to the glass, and kept there for a week, and be then placed in a similar position in a slightly less warm-house or pit, pricking off the seedlings into boxes when two pairs of true leaves are developed. They should be grown cool in the later stages, and duly hardened off before being set out.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Pruning.—Where there are many shrubs in great variety, it is necessary to commence the pruning of these forthwith, and in order to do this satisfactorily, each clump should be taken in turn, and the pruning finished so far as it may be at this season. Evergreens such as Portugal and common Laurels, Yew, Aucuba, Box, Phyllirea, Berberis Aquifolium, and other strong growing species, require when of large size to be cut back more or less annually, otherwise, they soon grow too big, and encroach on weaker shrubs adjacent, or assuming the appearance of a hedge. The system I have adopted here for years is to go round each shrub carefully at this season, and cut back, not too closely, but sufficiently to keep each in symmetrical form, and not to destroy the character of the plant. Treated in this manner, shrubs get the full benefit of sunlight, and the shortening of the branches prevents injury by heavy snowfalls. Berberis stenophylla, B. Darwini, B. dulcis, and B. empetrifolia, do not require to be pruned much, if at all, the strong shoots arching over, and other shoots grow out of them, and thus graceful bushes are formed without any trouble. Flowering shrubs such as Ribes, Spiræas, Philadelphus, Weigela, Hydrangea, Hypericums, and shrubby Honeysuckles (Lonicera), are the better for being pruned just before they go out of flower, or soon after flowering. In regard to Laburnum (Cytisus), Lilac, Gueldres Rose, Cerasus, and Prunus, the young flowering shoots die back after blooming, and fresh flower-buds form or flower-shoots start from the base of the old. Prunus Pissardi and the golden leaved Elders (Sambucus) make stronger growths, and leaves of a finer colour when annually cut back, leaving about 6 inches of the previously-made wood. These plants should be left for a few weeks longer, so that frosts may not injure the pushing buds.

Re-planting.—Advantage may still be taken of open weather to remove or transplant Rhododendrons, Ghent Azaleas, and Azalea mollis, trenching the ground, and adding fresh peat if necessary. If the plants have grown very luxuriantly, let one-fourth part of sandy loam be used. On planting remove all growths protruding from the stock. Should lime be present in the adjacent soil, the peat-beds should be raised above the general level, so as to prevent water impregnated with lime draining into the bed so as to damage the plants. Plants dug up and awaiting re-planting should be well protected from the air. A mulch of decayed cow-manure will be beneficial. Kalmia latifolia, Pernettyas, Ledums, Menziesia, and Polygala purpurea are evergreen shrubs succeeding well in peat-beds, and looking well when mixed with the deciduous Azaleas. Lichen growing upon Azaleas, &c., will, if let alone, kill the branches, and eventually the entire plant. Where very abundant, an endeavour should be made, by scraping and brushing, to get rid of it, finally washing the branches with a weak solution of soft-soap, petroleum, and water. Other species that will grow in soil containing lime may be cleansed by white-washing the stems and branches.

Roses.—The hardier climbing varieties may have the old wood removed, and the young wood laid in, pretty nearly at full length, and securely fastened to the wall or fence. The yellow and white Banksian Roses should not be pruned till flowering is finished, when they should be pruned back hard in order to obtain strong flowering growths for the next year.

Liliums.—Bulbs of L. auratum and its variety, L. a. platyphyllum, may be planted; also the varieties of L. lancifolium, L. longiflorum, L. speciosum, L. tigrinum, and L. superbiens. When not planted apart, it is a good practice to plant between Rhododendron and Azalea bushes. Some bulbs planted in the month of February some years ago throw up strong flower-spikes annually; these on arriving were placed in small trays, and covered with leaf-mould, and when rooted they were planted in the beds, with some pieces of rough turfy loam mixed with the peat, and some silver-sand under each.

Bedding-plants.—Pot up singly into 60-size pots, autumn-struck cuttings of Golden tricolor, Silver tricolor, and Golden Bronze Pelargoniums, using ordinary soil, and place them on a shelf near the glass, slightly syringe between pots to encourage root-action, they will then keep the colour in the leaves, and make bushy plants by the end of May. The best of the Golden tricolors are Mrs. Henry Cox, Masterpiece, Mrs. Turner, and Lady Cullum. Silver tricolors, Mrs. Laing, Eva Fish, and Silver Wings. Golden bronze, Maréchal MacMahon, Zulu, and Bronze Queen. These are excellent varieties for bedding, standing well the full rays of the sun, and make compact borders to beds.

Pelargoniums.—The hardier green and silver-variegated leaved varieties may soon be placed in cold frames to harden off, the gardener being guided in the matter by the state of the weather. These plants should then be shaken out of the boxes, the roots bound in moss, and be planted in rows in the same frames. This is a much less laborious method than growing them in pots, much labour in watering being saved, and the plants are as good as those at planting time. In preparing the frames, a bed 4 inches deep of not too rich a soil, should be placed upon a layer of coal-ashes. The second week in March is a good time for planting them.

Bulb-beds.—In times of frost the birds scratch for food amongst the bulbs, and break off the points, but if small shoots of Berberis Aquifolium be stuck in among the bulbs, so as not injure them, and round the sides of the beds, a stop will be put to the mischief.

PLANTS UNDER GLASS.

By C. R. FIELDER, Gardener to the DOWAGER LADY HOWARD DE WALDEN, St. James's House, Malvern.

Anthuriums.—These plants should now be repotted, turning them out of their pots, and carefully removing as much as possible of the old material with a pointed stick, and not injuring the roots in doing this. The compost—which should be warmed before using—may consist of two parts good fibry-peat broken into small lumps, one part sphagnum-moss, one part loam, and sufficient broken charcoal and sand to make and keep the compost porous. The pots should be clean or new, and thoroughly drained. Let the plants be kept rather high in the pots, and work the compost firmly in among the roots, rounding it off several inches above the rim of the pot in order to encourage the growth of roots from the stem. Place them in a moist position in the stove, affording copious supplies of water during actual growth.

Caladiums and Alocasias.—These Aroids, which should have been kept dry during the winter, may now be started. Shake the old soil from the tubers, placing these in small pots in a compost consisting of equal parts of peat, leaf-soil, and fibry-loam, with a good sprinkle of coarse sand. A little sphagnum-moss and broken charcoal, or brick-rubble, may be added to the soil used for Alocasias. After potting the tubers, place them in a moist house where a minimum temperature of 60° is maintained, and afford sparingly of water till growth has begun. When roots have been made in quantity, repot into larger pots, this time adding one part rotten-manure to the compost previously used. Pots 6 inches in diameter will be sufficiently large for ordinary decorative purposes, but, if large specimens are required, the plants should be afforded a subsequent shift into 8 or 10-inch pots, according to the strength of the plants. C. argyrites and other small-foliaged varieties, should be grown only in small pots. Propagation is effected by dividing the tubers, each division having a bud, and these pieces should be placed in small pots. It is best to divide the tubers and lay them on a dry shelf in the stove for a week before they are potted, in order to allow the cut surfaces to dry.

Tuberous Begonias.—A portion of the stock may now be potted. If the tubers have not already been turned out of the pots in which they were grown last season, that should now be done, shaking all the old soil away from them. Place them in small pots, which should only be sufficiently large enough to admit of a little soil being placed around the tuber. Afford a compost consisting of two parts sandy loam, and one part leaf-soil, together with a liberal allowance of sharp sand. In potting, keep the top of the tuber somewhat above the surface. Place the potted tubers in a temperature of 50°, syringing among the pots, and on fine days lightly sprinkling the soil with the syringe, which will provide sufficient moisture until growth commences, when the plants may be gradually afforded more and more water. Ventilate freely, and shade from bright sun, and as soon as the plants are well-rooted, shift them into larger pots, this time just covering the tubers with soil. A safe method of starting the earliest batch is to lay the tubers bottom upwards in a shallow box upon a layer of leaf-soil or cocoanut-fibre, sprinkling a little of the same material among them, and dew them over once a day with the syringe. They should be examined at frequent intervals, and any that have commenced to grow, place with the crown upwards, and when a sufficient number have started they may be potted up. When started in this way a very small percentage of losses will occur, as the water is unable to rest in the hollows of the crowns.

Chrysanthemums which are well rooted in small pots, should be transferred to 48's. The soil for this potting should not be too rich, and good turfy loam, leaf-soil, and sand, will be a suitable compost for the present. If the loam be heavy or stiff, endeavour to render it porous by adding plenty of coarse grit, such as river-sand, road-grit, or brick-rubble; but, if on the other hand the loam is very light or sandy, add no sand to the compost. After potting, place the plants in a cold pit or frame, and shade lightly for a few days if signs of flagging should appear. Water carefully, and air freely by tilting the lights, and when the plants are established in the pots, remove the lights during the day upon every favourable opportunity.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Early Vinery.—The change from dull rainy weather to bright sunshine, and a clearer atmosphere, has been helpful to Vines that were started early. An increase of temperature, which is easily maintained in bright weather, should be supported at night by fire-heat, to draw out the bunches to their full length. During the flowering period keep the atmosphere in the forenoon as buoyant as possible, to assist the setting of the berries. Later in the day and at night the usual atmospheric moisture should be provided, by damping down of floor and border surfaces, but discontinue syringing the Vines themselves. Beyond shaking the rods at midday, no other attention is required in the setting of early Hamburghs, &c. The necessary tying down of the laterals must be governed by the distance of the trellis from the glass. At a proper distance no tying would be needed until the bunches are set, but precaution should be taken that the shoots are kept clear of the glass, otherwise they will suffer from cold. A selection of the best-placed laterals will have been made, and these stopped at from one to three leaves beyond the bunches, according to the space furnished by the trellis and comparative closeness of the rods. Sub-laterals as they advance should be kept to one leaf, so that the primary leaves get every advantage from light and air. The work of stopping the laterals is best done by degrees, and without any binding rule as to certain days, as early Vines do not always break uniformly. Once they have been stopped, a day should be set apart in every week for the further stopping of sub-laterals, and for tying down shoots. Where the hot-water pipes are situated near the Vines, and not raised much above the soil, water will be needed around the pipes more frequently than in other parts of the border, and so soon as the bunches are set, a general watering should be given with diluted liquid-manure.

Second Early Vines will now be in an active state of growth, requiring almost daily attention to the work of disbudding. The weakest and ill-placed ones should be at once rubbed out, the remainder carefully selected, so as to get a uniformity of bunches. Laterals without a fruit bunch may be stopped early, giving others the benefit of the additional space thus provided. By damping of the floors with liquid-manure in the evening, the Vines will derive much benefit from the ammonia-charged atmosphere. While the foliage is tender it is safer to employ only clear water during the day, or, at any rate, while there is bright sunshine, the latter sometimes causing a scorching of the foliage when atmospheric ammonia is given off in an appreciable volume.

Planting Vines.—Dormant canes can now be planted in borders made entirely inside or outdoors. In the latter case, the rod has to pass through an aperture in the front wall or woodwork, and only in a dormant state can this be done with safety. Well protected with leaves and strawy litter, no danger from cold or frost need occur after planting. In neither case should water be required, the soil affording sufficient moisture for present requirements. Generally, the more satisfactory course is to shake out or disentangle the principal roots, to enable them to be spread out evenly in the border, and if they are covered with a little fine soil, specially prepared, they will be stimulated to an early and healthy growth. No shortening of the canes should be done at this date, or bleeding will be at once set up, which will subsequently be difficult to suppress. The removal of the buds from the extremity down to the point where they would otherwise be pruned, would be better practice. This will vary according to the strength of the cane and the position occupied. When planted indoors, the front of the roof-trellis is sometimes selected as the point at which to stop the rod, and in such a case, all buds from the ground upwards to this point should be retained, and pinched later at a length of two or three leaves. If the Vine be planted in an outdoor border, disbud to a point nearest the opening, or one conveniently placed for the easy training of the prospective shoot.

The Strawberry.—Those plants which are in flower should have the flowers pollinated with care every day about noon, till it is seen that a number sufficient for a crop is set. At such times ventilation should be given, in order to render the atmosphere of the forcing-house buoyant and somewhat dry. A feather, camel's-hair pencil, &c., may be used to carry the pollen to the stigmas. Plants which have set a crop, may, after a time be afforded stronger plant-food than water, such as much-diluted guano-water. Before and after setting, the foliage needs to be syringed twice daily, or red-spider will soon appear on the leaves. Continue to place plants in heat according to the demand, remembering that a fewer number of plants will suffice than earlier in the year.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Protecting Peach and Apricot Bloom.—Although I am of the opinion that the blossoms of Peaches and others are often unnecessarily covered, and very frequently much sooner than is advisable, yet it is well to have some means of protection ready to hand for placing over the trees in case of a sudden change from mild weather to severe frosts. If the covering used be fixed, do not place it over the trees before the first blossoms are partially open. Gardens lying in valleys or near water suffer considerable disadvantage at this season, as frost will affect the fruit-blossoms so much quicker than in gardens in a high and drier position. Each season during the past ten the Peach crop here has been a full one, and during several seasons no protection whatever has been afforded. The only covering ever given has been garden-netting in three or four thicknesses, and subsequent to the blossoms commencing to open. This was kept in position with poles standing out about 3 feet from the base of the wall, and let into the border a few inches, being fixed to the coping above on which the netting was suspended. If a more elaborate system of protection be contemplated, the best material for the purpose that I have seen is that sold by the trade as No. 5 shading. Where this is used, a ready means of removing it daily from the trees must be constructed: such as small iron rods fixed under the coping, and on stout posts about 3 feet high, and as much from the base of the wall. The material should be fitted with ordinary brass curtain rings top and bottom, these to run on the rods fixed parallel with the wall. Thus, each tree would have two such curtains, that, when drawn, would meet in the centre, a string tied to the top inside ring serves for drawing the curtains to and fro, and keeps them in position by tying together when drawn. In making these curtains, the depth should be only just sufficient for the rings to meet the rods and allow of running easily, otherwise if made too full, in windy weather they would blow against the trees. These coverings will last for many years if stored away in a dry place when not in use. The trees should be left fully exposed both night and day in mild weather.

The Fig-tree.—The Fig-trees have not stood in need of much protection from frost the present winter, and after this date it is not likely that we shall experience frost sufficiently severe to injure trees on walls if now exposed, especially if the walls have a good wide coping. In any case, where the trees are thatched with straw, some or all of this should now be removed, if the latter, a lighter one of fish netting, three or four times thick, may be hung over the trees after pruning. The latter operation should now be carried out. The pruning consists of the removal of all old spurred-in branches, and those which have borne fruit. The bare spaces, the result of this operation, should be covered with young shoots of the previous season, which should be laid in at their full length, the points of these shoots bearing the most fruit. A space of 6 to 9 inches should be allowed between the young shoots, otherwise the fruits of the young wood have little chance of maturing perfectly, especially if the summer be a cool one. The present season is suitable for the planting or transplanting of the Fig. As a rule of general observance, a south wall, or the corner where a west wall connects with it, should be selected for planting Fig-trees. A wide, deep, or rich border is unnecessary for the Fig, in fact, should be avoided, the rank growth induced by much nutriment leading to unfruitfulness in the plant. Where the natural soil is heavy and devoid of lime in any form, a narrow border, 18 inches deep, with something at the bottom and sides to confine the roots should be provided, the staple of the border being dug out, and loam two parts, mortar-rubble and broken bricks one part each substituted, the whole being mixed together and thrown into the hole, and rammed or trodden till it is firm. The drainage of the border should be as good as possible. A border, having an area of 1½ yard square will afford ample space for a good-sized tree. Although brick walls will confine the roots for a time, these will eventually get through or beneath the brickwork, which will entail a cutting back of the roots in order to check inordinate top-growth. The roots of a Fig-tree turned out of a pot, should be uncoiled and laid out in the border, and the soil made quite firm about them; and if the border be a new one, the plant should be planted rather high, so as to allow for the settlement of the soil. Good Figs to plant out of doors are White Marseilles and Brown Turkey; but if only variety be desired, choose the latter.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Miltonia vexillaria.—There are but few species of Orchids which give such a wealth of bloom for the size of the plant as Miltonias, and when the situation is suitable, few are grown with less trouble. M. vexillaria, in its native habitat, is subjected to severe drought at times, so that the bulbs shrivel excessively; but the wet season restores them to a plump condition, and apparently they are not any the worse for the drought. It is not usual to subject plants under cultivation to such conditions, still, very little water is needed to keep them in good condition from October to the present. The plants are now forming pseudobulbs, flower-spikes, and roots, and call for different treatment. Excepting when the pots are too small for the plants, or *vice versâ*, Miltonia vexillaria should seldom be re-potted, a yearly renewal of the surface materials meeting their requirements, and being a surface-rooting plant, the pots should be almost filled with crocks, the plant being placed on the top, and sphagnum-moss and peat worked in among the roots, leaving the central mass slightly elevated above the rim. The moss and peat may be about equal in quantity. Such species as M. v. rubella, Klabockorum, Leopoldi, and superba, which are natives of mountains, will not be so forward in growth as the first-named, and surfacing and potting may be postponed, but in other respects the treatment should be identical, keeping them in a house having a temperature between 55° and 58°, affording air freely when weather permits, moisture in the air and at the root being maintained in excess of that which has been afforded during the winter months. Fumigate lightly once in three weeks in order to kill thrips, and remove dust from the leaves with a sponge.

Pescatorea, Bollea, &c. — Botanically speaking, these are still classed as Zygopetalums, but from a cultural standpoint, they have little in common with the old members of that genus. The essential points in their cultivation are dense shade, much moisture, a fair amount of heat, solar or other, and to be afforded fresh air. Success can usually be obtained by growing them with the warm-house Cypripediums, placing them in the shadiest part of the house. Baskets or perforated pans are more suitable than pots in which to grow them, and these should be filled to three-fourths of their depth with crocks, peat, and sphagnum-moss, the latter preponderating, being the chief rooting materials. Newly-poted plants should be sparingly afforded water until re-established, when more may be applied. With advance of the season overhead spraying will be of benefit to the plants, and help also to keep them free from red-spider, and occasionally the leaves should be sponged with a mild solution of soft-soap.

Spathoglottis aurea and Kimballiana may now be re-potted if necessary, using much drainage both under and among the roots. Over the crocks lay sphagnum-moss, and finish off with a mixture of peat one-third, loam, sphagnum-moss, sand, and small crocks. When finished, the mass should be a little lower than the rim, much water being required by the plants during the summer. The pots should stand on moisture-holding material, such as fine coal-ashes in a light part of the stove, and water be applied sparingly for some weeks. S. Vieillardi thrives under similar conditions, but being a more vigorous grower, more loam may be introduced into the compost, and more root-space given. The dwarf cool-growing S. Fortunei is deciduous, and seldom needs re-potting, the removal of loose stuff on the surface, and replacing it with a mixture of loam, leaf-mould, and sand sufficing. Just enough water to prevent excessive dryness till the plicate leaves have made headway should be afforded.

APPOINTMENTS FOR MARCH.

THURSDAY,	Mar. 2	Linnean Society, Meeting.
TUESDAY,	Mar. 7	Scottish Horticultural Association, Meeting.
SATURDAY,	Mar. 11	Royal Botanic Society, Meeting.
MONDAY,	Mar. 13	Annual Meeting of the United Horticultural Benefit and Provident Society.
TUESDAY,	Mar. 14	Royal Horticultural Society, Meeting. National Rose Society, Committee Meeting. Royal Horticultural Society of Ireland, Meeting.
THURSDAY,	Mar. 16	Linnean Society, Meeting.
TUESDAY,	Mar. 21	Truro Show of Daffodils (2 days): Deputation from the Royal Horticultural Society.
WEDNESDAY,	Mar. 22	Show of Torquay Gardeners' Association
SATURDAY,	Mar. 25	Royal Botanic Society, Meeting.
TUESDAY,	Mar. 28	Royal Horticultural Society, Committees.

SALES FOR THE ENSUING WEEK.

MONDAY,	Mar. 6	Roses, Carnations, Anemones, Spiræas, &c., at Protheroe & Morris' Rooms.
TUESDAY,	Mar. 7	Hardy Border Plants, Gloxinias, Pæonies, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	Mar. 8	Japanese Lilies, Palm Seeds, Continental Plants, &c., at Protheroe & Morris' Rooms.
THURSDAY,	Mar. 9	Hardy Perennials, Gloxinias, Hollyhocks, &c., at Protheroe & Morris' Rooms.
FRIDAY,	Mar. 10	Climbers, Dahlias, Roses, Hardy Perennials, &c., at Protheroe & Morris' Rooms. Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period February 19–25, 1899. Height above sea-level 24 feet.

1899.		Temperature of the Air.					Temperature of the Soil at 9 A.M.			
		At 9 A.M.		Day.	Night.					
February.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Highest.	Lowest.	Rainfall.	At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 19	E.S.E.	42·9	42·9	52·3	37·0	...	42·6	44·2	45·6	30·8
Mon. 20	E.N.E.	45·2	43·9	46·6	42·5	...	44·0	44·3	45·7	40·3
Tues. 21	E.N.E.	42·9	40·1	45·6	41·1	...	43·6	44·5	45·6	36·5
Wed. 22	E.S.E.	41·8	37·8	48·9	35·5	...	41·5	44·5	45·6	25·0
Thu. 23	E.N.E.	34·6	33·5	53·3	32·0	...	39·6	43·6	45·6	19·5
Fri. 24	S.E.	27·8	27·8	51·9	26·2	...	38·6	42·9	45·6	18·0
Sat. 25	N.E.	33·0	32·8	42·6	27·0	...	37·8	42·2	45·3	18·8
Means...	...	36·5	35·8	48·0	36·2	Tot. ...	40·9	44·0	45·5	29·1

Remarks.—No rain has fallen since the 15th; the temperature has been steadily going down, and the wind has varied between N.E. and S.E. Fog has been prevalent, being very dense on the 24th and 25th.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—41·6°.

Actual Temperatures:—

London.—*March* 1 (12 P.M.): Max. 55°; Min. 28°.

Provinces.—*March* 1 (12 P.M.): Max. 49°, Cromer; Min. 43°, York.

Shrubs on Lawns.

From a variety of causes it may frequently occur that the shrubs, deciduous and evergreen, afford little satisfaction, making poor growth, the branches dying at the tips, and with but few flowers in season. These lawn shrubs may consist of Deutzias, Spiræas, Coronilla Emerus, Jasminum fruticans, Philadelphus microphyllus, and **Lemoine**'s hybrids of Philadelphus, the new varieties of Lilac; Vitex, Sophora pendula, Stuartia, Magnolia Soulangeana, M. Lenné, M. stellata, Desfontainea spinosa, Aralia spinosa, Styrax obassia, a very free-flowering Japanese shrub; Indigofera decora and I. Gerardiana, Cornus Kousa, C. florida rubra, Chimonanthus fragrans, Daphne Mezereum, Desmodium, Eleagnus argenteus, Eucryphia pinnatifolia, Exochorda, Forsythia suspensa, and others; Hibiscus syriacus, Hydrangeas, Pæonia moutan, and Arundo Donax.

The present season affords the gardener the opportunity of improving the health of the plants by transplanting them bodily, digging out the bad soil wholly or in part, and replacing it with suitable fresh soil, or mixing a considerable portion of the latter with the staple, and increasing the root area by several feet.

In all cases where the health of the plants has suffered, an endeavour should be made to lift the root-mass fairly intact, and to lay the roots extending beyond the outside of the mass at varying levels, stretching them out at their full length, and embedding them in the soil firmly. If a plant's roots are found to be dead for some distance from the tips, these should be cut back to sound tissue, the cuts being made from the under-side in all cases, so as to induce ready callusing, and eventually the formation of roots.

It will considerably hasten the production of new roots in such cases if a large quantity of sharp sand be thrown in around the root-masses, and water plentifully afforded during the progress of the replanting operations. Those plants which possess small roots are benefited by having sandy-peat, leaf-soil, and sand, mixed with pasture-loam, used in the replanting; but this is a matter about which we will not dogmatise, seeing how greatly natural soils vary, and that particular ingredient which is called for in one, may not be at all needed in another.

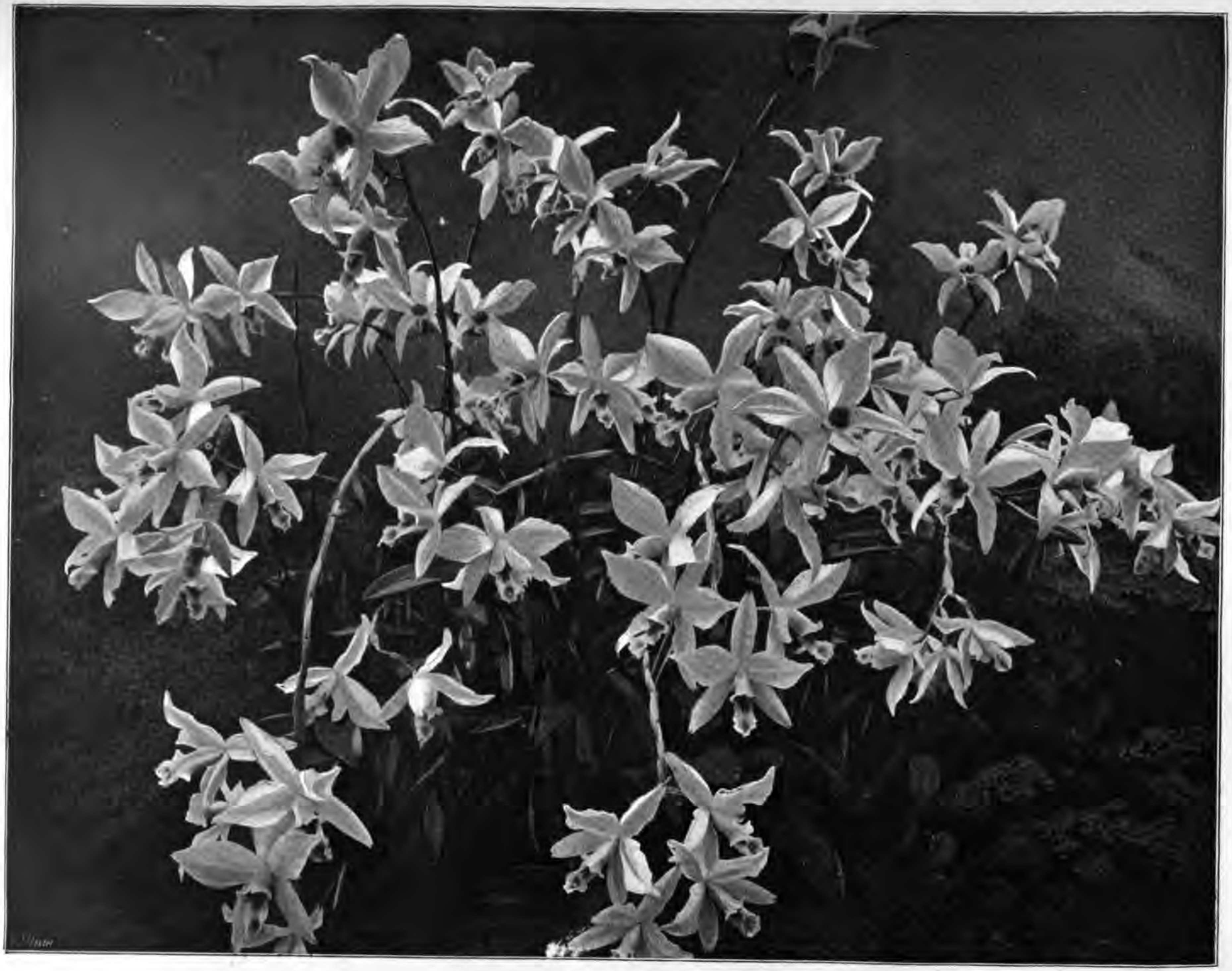
A matter often totally neglected by amateurs, and by many gardeners, is the pruning of flowering deciduous shrubs, and the removal of weak, flowerless, and useless shoots, which, being left untouched, hinder the proper ripening of the best shoots, and rob them of nutriment to their detriment.

In the case of shrubs which flower on the new growth, pruning may be carried out in the autumn and early winter severely in the case of young plants growing into form; and moderately in the case of those that have attained a desirable size, but in every case the relatively weak shoots should be removed. On the other hand, the species which flower on one-year-old shoots and spurs should be pruned towards the end of the season of flowering, not, however, waiting till it is quite past, as to do this would shorten the all-too-brief season of growth. Only in the case of young plants in course of formation should there be a cutting-back of the main shoots or branches, but the more mature plants should be allowed to assume their natural shapes, which is always more satisfactory than any endeavour to control growth would make them. This will be readily acknowledged by anyone who has compared for example a Deutzia which has not had its main shoots shortened, with one that has been clipped all over, as is sometimes done. The fact is, a good shrub-pruner must not alone possess a sharp knife, but brains as well; and he must have a thorough knowledge of the mode of growth and of flowering of all the subjects upon which he is required to operate. This, of course, bars most garden labourers and gardener apprentices. This reminds us that gardeners who know their work, and who desire their young people to acquire knowledge, should always let them accompany the person entrusted with the work. If this were more commonly done, and shrub-pruning systematically and annually carried out, garden shrubs would afford more gratification than is commonly the case. Unfortunately, shrubs in gardens, being employed as wind-breaks, fences, or screens to objectionable features about a place, come in for little if any attention, except it be of the wrong sort—as, for instance, pruning with the shears on one pattern, or the deep digging of the land beneath, with the idea, one would imagine, that the more surface-roots are destroyed in the process the better for the shrubs. We see examples of this absurd practice in some of the public gardens and parks in London, one of the worst being those of the Thames Embankment.

We will, in conclusion, touch upon the important matter of surface feeding after a shrub has become established. From the position of a shrub on a lawn, it is not desirable to place nasty-smelling manurial mulches on the soil around shrubs, neither to fork such aids to growth into the soil, so that the gardener has to fall back upon the use of bone-meal, guano, potash, nitrate of soda, lime and manure-water, all of which can be afforded readily if a circular space, 2 to 3 feet in diameter, round the stem, be left clear of grass.

Failing this free space, or in cases where the roots extend far away from the stem, the manurial agents must be applied to the turf, with naturally a resulting strong growth of the grasses. One or two copious applications of manure-water should be made in the winter months, and several during the period of growth, say in June and July, not later. In light soils particular attention should be paid to affording water in the summer, more especially to shrubs not many years planted, failure to do this usually resulting in impaired growth. Shrubs of long standing seldom suffer much before the end of the summer, and rarely so much as to flag; so that unless water and the labour to supply it are available, they may be left to chance. The recent rainfall has been general and heavy over the whole country, but that, notwithstanding the lack of moisture in the soil at the end of the year having been extreme, the rainfall, heavy as it has been, will not have replaced that which was lost by evaporation during the drought; and gardeners will probably find their bigger shrubs, and even trees, exhibiting signs of suffering before the autumn.

Lælia anceps var. Sanderiana at Highbury, Birmingham.—The Supplement to our present issue shows a very freely-flowered plant of this pretty variety of L. anceps, which recently bloomed in the Orchid-houses of the Right Hon. Joseph Chamberlain, M.P. In *Gardeners' Chronicle* for February 26, 1887, p. 281, was given an illustration of the variety, showing a bloom of its natural size. Though not perhaps so handsome as L. a. Dawsoni, that of Sanderiana very closely resembles that lovely Orchid, the crimson upon the labellum being but a little lighter in tint, and the form of the flower less perfect. There are numerous forms of Lælia anceps now in common cultivation, and all of them are very lovely, the species itself being one of the best known and most commonly cultivated



A Plant of Lælia anceps var. Sanderiana in the Gardens of the Rt. Hon. Joseph Chamberlain, Highbury, Birmingham.

of Orchids. Such a specimen as shown in our illustration is a testimony to the success with which Mr. Chamberlain's Orchid grower has cultivated the collection at Highbury.

LINNEAN SOCIETY.—February 16: Dr. A. Günther, F.R.S., President, in the chair. Mr. Clement Reid, F.L.S., exhibited some fruits of Najas minor, Allioni, and of Najas graminea, Delile, found during a further examination of the interglacial deposits at West Wittering, in Sussex. Najas minor is distributed throughout Europe, except in the north, and in Britain; Najas graminea is found in the Tropics of the Old World, as well as in the Mediterranean region. In Britain, where it has been accidentally introduced, it has been found in a canal which receives waste hot water from a factory. Dr. A. B. Rendle, F.L.S., exhibited specimens of a fresh-water Alga (Pithophora) new to Britain, and described its structure; additional remarks being made by Messrs. A. W. Bennett and Clement Reid. Messrs. I. H. Burkill, F.L.S., and C. H. Wright, A.L.S., read a paper "On some African Labiatæ with alternate Leaves," a peculiarity which had been recently used by M. Hua to characterise a new genus, Icomum. To this genus three new species were now added. Its affinity was said to be with Æolanthus, in which certain irregularities in the arrangement of the bracts of the inflorescence and flowers might be observed. The types of the new species described were stated to be in the herbarium at Kew Gardens.

THE PARIS EXHIBITION.—In connection with the horticultural section of the Exposition Universelle to be held in Paris in 1900, the committee, under the presidency of M. Charles Baltet, have decided to arrange an Arboricultural and Pomological Conference, under the following conditions:—

I. The Conference will be held concurrently with the great fruit show, probably about September 25, 1900.

II. Preliminary papers will be accepted dealing with the undermentioned subjects included in the programme of the Conference:—

1. Fruit Farms; Cultural and Economic Principles; Choice of Suitable Varieties, and their use.
2. Fruit-planting by roadsides.
3. Harvesting and preservation of Fruit; Packing Fruit.
4. Cider trees and fruits; their cultivation and uses.
5. Atmospheric agencies; their influence on forced Fruit-trees and Vines.
6. Vegetable Physiology as regards fructification; Practice of Grafting and Pruning.
7. Tariffs and conditions of transport for Trees and Fruits.
8. Insects; diseases; remedies.
9. Manures and fertilisers.
10. Concerning the propagation of varieties of Fruit for Colonial cultivation.
11. Tuition in Fruit-culture; Garden-schools; Public instruction; Congresses, &c.

The Bureau, with M. Charles Baltet as president, will arrange all details connected with the organisation of the Arboricultural and Pomological Conference.

OPEN SPACES AND PARLIAMENT.—It is but a week or two since, at a conference between central and local authorities, it was agreed to leave the supervision of metropolitan "open spaces" to the sanitary officials—this in order to ensure efficient supervision and to allay friction. On the face of it this appears to be the proper course, yet but a few days elapsed before a Bill was introduced into the House of Commons, once more altering and proposing to alter the arrangements arrived at. The new "Municipal Bill" proposes to hand over the many open spaces to the care of what we may term here "Borough Parliaments," each with a mayor, aldermen, and common council. Perhaps the open spaces may find this to their advantage—perhaps the result may be to the contrary; at any rate, the matter is well worthy the attention of all concerned: this means all lovers of pure air, contact with plants and flowers, and healthy exercise for youngsters in the metropolis. Let our parliamentary representatives make a special note of this matter when the bill in question gets into committee.

HAMPSTEAD HEATH PROTECTION.—Mr. E. Brodie Hoare, M.P., presided, on February 22, at the second annual general meeting of this Society, which was held in the lecture-room of the Subscription Library, Stanfield House, Hampstead. The Society was established in 1897, to take steps for the preservation of Hampstead Heath in its wild and natural state, so far as is consistent with its full enjoyment by the public. The annual report and balance-sheet showed that, in co-operation with the London County Council, the Society had already been the means of doing some useful work. The chairman, in addressing the meeting, said that the Society had no desire to act in antagonism to the London County Council, but to co-operate with them in preserving the natural beauties of Hampstead Heath, and he believed that feeling was reciprocated by many members of the County Council. The report was unanimously adopted, and various speakers insisted on the importance of preserving Hampstead Heath as a piece of natural open country, and of not treating it like a London park.

RUBBER-PLANTS.—Economically and commercially, great interest now centres in the cultivation in suitable localities of plants yielding caoutchouc. The demand is already very large, and it is likely to increase rather than diminish; hence, it is very important that our colonies should be supplied with the means of cultivating the rubber-plants on a large scale. Messrs. J. B. Williams & Brothers, of Verjancoda, Ceylon, send us circulars relating to the cultivation of Castilloa elastica, the most valuable Central American rubber-tree, and Hevea brasiliensis, which furnishes the Para rubber.

HYBRIDISATION.—Mr. R. A. Rolfe, of Kew, who is preparing a paper for the Hybridisation Conference, entitled "Hybridisation viewed from the standpoint of systematic botany," would be much obliged for any information respecting the reproduction of any supposed natural hybrids by artificial means, either among Orchids or other plants.

THE COAL-SMOKE ABATEMENT SOCIETY.—Sir Wm. Richmond took the chair at a committee meeting of this society, held last week at 6, Onslow Gardens. Several letters were read from members who were unable to attend. The Duke of Westminster in expressing a wish that a younger man than himself might accept the presidency, showed his practical sympathy by subscribing £100. The chairman, in referring to the rapid increase in the membership, felt it was largely due to the action of the committee in fixing the minimum annual subscription at a nominal amount, thus obtaining the wide support of the public. When the inhabitants of this great metropolis thought of the benefit to health and the saving to the pocket secured by a cleaner and purer London, they would be quick to give their substantial assistance to the movement. The hon. secretary, Mr. Owen B. Thomas, of 59, Chancery Lane, will be pleased to answer any enquiries.

KEW GARDENERS: PAST AND PRESENT.—The annual meeting of the Kew Guild, an institution that was established in 1893, as a means of bringing into closer association with each other the past and present graduates of the Royal Gardens, was held on the 23rd ult. The proceedings took place in the new room, known as the student's library, which is capable of seating upwards of seventy persons, and is in every respect a convenient and comfortable apartment. In the much regretted absence of the president (Mr. Geo. Nicholson), the chair was filled by Mr. Jno. Weathers. The report for the year was received with considerable satisfaction, and the management of the affairs of the Guild, including the *Guild Journal*, which is issued annually, and edited by Mr. Watson, was warmly praised. There are now seventy-one life members of the Guild, and the committee's appeal for others to compound their subscriptions by a payment of £1 is one that should meet with general acceptance. Mr. R. A. Rolfe was elected to represent the herbarium upon the committee, and when the young men at present employed at Kew had chosen one of their number to represent them in place of a retiring member, the rest of the committee were re-elected *en bloc*. It may interest many members in the colonies to know that a portrait of Mr. W. Botting Hemsley, F.R.S., will form the frontispiece to the next *Journal*, to be issued in May. A resolution was passed offering the congratulations of the Guild to the director of the Royal Gardens, Sir W. T. Thiselton Dyer, K.C.M.G., &c., upon the honour recently conferred on him by Her Majesty. Several minor alterations were made in the rules for the purpose of fixing the annual meeting for the last Thursday in February of each year. Any reader who has been employed at Kew, but who does not receive the *Guild Journal*, is invited to write to Mr. Watson, the hon. secretary.

FRUIT CULTIVATION BY FARMERS.—At the Farmers' Club, Salisbury Square, Fleet Street, E.C., on Monday, February 27, Mr. Spencer Pickering, F.R.S., gave a paper on this subject which attracted a large gathering of members. All the principal points in relation to fruit growing on Farms were dealt with generally, and especial stress was laid upon the fact that more attention was needed than had hitherto been accorded from an agriculturist's point of view. Examples of the gross neglect so apparent in many districts were described, and the remedies indicated. The extension of fruit culture by an arrangement between landlord and tenant was advocated, and the method which found favour with the lecturer was one by which the landlord provided the trees, and the tenant incurred the expenses of preparation, planting, and culture. A system of compensation was also recommended; the actual amount payable to an out-going tenant being determined by valuation. A vote of thanks to the lecturer concluded the proceedings after some discussion had taken place on the various aspects of the subject.

ORCHARDS.—A practical paper was contributed by Mr. R. L. Castle, Manager of the Woburn Experimental Fruit Farm to the Bedfordshire Chamber of Agriculture, on Saturday, February 25, in which the subjects of planting, managing, and restoring orchards, were dealt with exhaustively. There was a large attendance of members, and an interesting discussion followed, during which, both the difficulties and the advantages of fruit growing were fully brought out. Mr. Crick, a fruit grower of Ampthill, endorsed the whole of the statements made in the paper, which he described as thoroughly practical, and useful in every respect. He further stated, that after forty years' experience he was preparing to make a considerable extension of the area of land he devoted to fruit, and he thought that was the best proof of his opinion in the matter. A hearty vote of thanks was accorded to Mr. Castle at the conclusion of the proceedings.

MISS HELEN THORNYCROFT'S EXHIBITION.—Miss Helen Thornycroft, sister of Hamo Thornycroft, R.A., sculptor, has now on view at her studio, 2A, Melbury Road, some beautiful flower pictures, and paths and corners of old-fashioned gardens, the latter mostly taken from cottage gardens in Monmouthshire and Herefordshire, where the soil must be exceptionally good, and the care and attention of the gardener unremitting. Miss THORNYCROFT'S flower pieces are well known; and in looking round her gallery one is especially struck by the purity and brilliancy of her colouring, and the accurate drawing of the flowers so gracefully arranged. There are two beautiful Orchid groups, and a very free and natural arrangement of Fritillarias. Besides the flower subjects alluded to, Miss THORNYCROFT is showing sketches of Scotland, Monmouthshire, and the Italian and Austrian Tyrol, the former so blue and tender in colour, and Dolomite country so still and cold. The exhibition will remain open till March 25 inclusive.

FLOWERING OF AMHERSTIA NOBILIS.—Knowing that you are always interested in anything special or rare, writes Mr. JEFFREY, of Harewood House Gardens, Leeds, under date of February 28, I am writing to let you know that one of our plants of Amherstia nobilis is showing two racemes of flowers. The plant is between 6 and 7 feet high, and was brought from Trinidad by Lord HAREWOOD five years ago. Judging by the progress it is making, the blooms should be open in about four weeks.

WILTS COUNTY COUNCIL. — The following summary of the chief results obtained for the last four years in the Experimental Stations near Calne has been published in the annual report:—

POTATOS.—1. Good crops of Potatos may be grown at a profit for four years (probably more) on the same land with artificials alone as a manure, provided these contain nitrogen, phosphorus, and potash in suitable form and proportion. 2. The omission of any one of the ingredients (nitrogen, phosphorus, or potash) reduces both the crop and the profit on the manure employed. 3. Of the three above-mentioned ingredients, the omission of potash causes the least loss, and that of nitrogen the greatest 4. The application of 8½ cwt. per acre of artificial manure containing equal weights of nitrate of soda, mineral superphosphate (26 to 27 sol. phos.), and kainit, is more remunerative than one consisting of either 4½ cwt. or 12¾ cwt. of a similar mixture. 5. Sixteen tons per acre of stable-dung, at 5s. per ton, produces a bigger crop and more profit than 8½ cwt. per acre of the artificials referred to above. 6. The maximum crop and profit were obtained with stable-dung, 8 tons per acre, supplemented by nitrate of soda, 3 cwt. per acre, or an equivalent of ammonium sulphate. 7. During an average season but very little may be gained by spraying early varieties with Bouillie Bordelaise if planted in good time; but the spraying of late varieties may at least be regarded as a cheap form of insurance against loss of crop from the Potato disease. 8. Equal weights of whole and cut seed yield very nearly the same weight of crop. 9. The plucking of flowers from the Potato plant, to prevent loss by formation of seed, is not remunerative. The yield from heavy land, especially in dry seasons, is greater than that from light land. 10. The best distances for planting appears to be eight rows to the perch, and 14 inches between the sets in the rows for late varieties, and ten rows to the perch and 12 inches between the sets in the rows for early varieties.

ROTATION CROPS (ON HEAVY LAND).—1. Good crops of Mangels, Barley, Beans, and Oats may be profitably grown in rotation without farmyard-manure, provided suitable artificials be employed. 2. Of the above crops, Mangels give the best and Beans the least return for artificial manuring. 3. The best financial results have been obtained so far by manuring as follows:—Mangels: nitrate of soda 4½ cwt., salt 3 cwt., and superphosphate 1 cwt. Barley: nitrate of soda 1½ cwt., and basic slag 4 cwt. Beans: no manure, but seeds treated with nitragin. Oats: nitrate of soda 1½ cwt., and basic slag 4 cwt. per acre. *C. H. Corbett, Secretary.*

EXPERIMENTAL GARDEN, DROITWICH.—The third annual report is before us, giving details of the various fruit trees and garden crops raised during the year 1898. Cox's Orange Pippin, Bismarck, Gladstone, Potts' Seedling, Stirling Castle, Cellini, Keswick Codlin, Lord Grosvenor, Winter Hawthornden, and Worcester Pearmain were among the best Apples grown. The best Plums were the Czar, Pershore, Mallard, and Bittern. Of Red Currants, La Fertile, Victoria, and Knight's Early are the most vigorous growing varieties. Among Gooseberries, Rough Green, Whinham's Industry, Keepsake, Rough Red, and Scotch Red are the strongest growers. The favourite Raspberries are Prince of Wales, Red Perpetual, Superlative, and Surprise d'Automne. The best four Strawberries were Royal Sovereign, Monarch, the Countess, and Sir Joseph Paxton. Similar details are given with relation to kitchen garden crops. Our space will not allow us to cite more freely, but we advise those interested to become possessors of this useful little treatise, which is issued by Mr. UDALE for the Worcestershire County Council, and which may be had from Messrs. MARK & MOODY, Stourbridge.

"ILLUSTRATIONS DE FLORE DU CONGO."—Under this title, MM. DE WILDEMAN & DURAND are issuing a series of quarto lithographic plates devoted to the illustration of the new plants discovered in the Congo State. Some 2[illegible]0 specimens are already preserved in the National Herbarium at Brussels, of which no fewer than 500 are considered to be new to science. Living plants will also be collected and remitted to M. LINDEN for purposes of cultivation. We presume also that the Botanic Gardens of Belgium will profit by these importations. The illustrations before us are principally of botanical interest only. They are excellent representations of the respective plants, and are furnished with detailed analyses, without which such plates are of little value. Vernonia hamata is remarkable for the inner scales of the pappus, which are strongly hooked at the apex. The collaboration of monographers of particular families is ensured.

THE CRYSTAL PALACE. — Exhibitors know full well that there is no place near London anything like so well suited for their purposes as "the Palace." They will, therefore, be interested in knowing that the prospects of the Company are decidedly improving. The financial condition is sounder, the train service is to be improved, and altogether the outlook is much more favourable than it has been of late years.

THE SURVEYORS' INSTITUTION. — The next ordinary general meeting will be held on Monday, March 6, 1899, when a paper will be read by Mr. F. J. SMITH (Fellow), entitled "The Working of the Light Railways Act, 1896." The chair will be taken at 8 o'clock. Country meeting at Bristol:—It has been decided, on the invitation of the Somerset, Gloucester, and North Wilts Provincial Committee, to hold the next country meeting at Bristol, on April 26 and 27. The first day will be devoted to papers and discussions, with a dinner in the evening; the second day to excursions to various places of interest in Bristol and its neighbourhood. Full particulars will be issued a little later on.

A NEW WATER-LILY.—Under the name of Nymphæa fennica, Mr. A. J. MELD, in the *Acta Societatis pro fauna et flora Fennica*, xiv. (1897), April 3, describes and figures a new small-flowered white Water-Lily. The leaves and flowers are small; the petiole has only two large central air-canals, instead of four, as in N. candida and N. alba. The base of the flower, and its relative size in regard to the sepals, are very characteristic looked at from beneath, is four-sided, and separates the species from N. candida and N. alba. The white petals, ten to fifteen in number, are narrowly lanceolate and concave, so that the entire corolla is cup-shaped. The stigmas are five- to nine-parted, with yellow, often violet-tipped, lobes, so that they form a central star, whose rays are deep violet-coloured. The species occurs chiefly in middle and East Finland, mostly in small forest-pools.

THE CEDAR AVENUE AT DROPMORE.

FEW persons who have visited Dropmore, that paradise of Conifers, failed to view the remarkable Cedar avenue. It is not a conspicuous feature, leads to nowhere in particular, and is situated some hundred yards distant from, and about parallel to, the road which traverses the grounds. The finest specimens of Cedrus Deodara now extant at Dropmore were planted by Frost in 1834, which was soon after his appointment as gardener; but this avenue of Lebanon Cedars was probably planted ten or fifteen years later. The trees were planted in avenue form, we believe, in reality to get rid of them, so many Cedars having been dotted about the grounds as to be suggestive somewhat of monotony. But although it owes its origin to an accidental abundance of young plants, the avenue forms at this day a pleasing and unusual feature of tree-planting in this country. The photograph from which our illustration (fig. 52) was prepared was taken by Mr. James, of Farnham Royal.

HOME CORRESPONDENCE.

FULHAM PALACE GARDENS.—I notice in the *Gardeners' Chronicle* of last week's issue, a reference to the above gardens in the olden time. Having had the pleasure of a ramble round the grounds and gardens of this interesting old palace, one day last summer, I had many ancient specimens pointed out to me by Mr. Turner, the present head gardener. Two mentioned in last week's article are still there, viz., Gleditschia triacantha, and Juglans nigra. Beautiful specimens of evergreen Oaks are prominent on the lawns; also noteworthy specimens of Fagus asplenifolia, Taxodium distichum, Cedrus libani, and Betula incisa; a magnificent example of the Eastern Plane-tree, Platanus orientalis, stands in the centre of a broad walk, leading to the drawbridge. On the palace walls are the old Sweet Bays and Myrtles, growing to a height of from 16 to 20 feet. The grounds, gardens, and palace are surrounded by a moat, which is still kept filled with water, as in ancient days. It is pleasing to add that Bishop Creighton and his lady take a great delight in their gardens, which Mr. Turner keeps in admirable order. *T. H. Bolton.*

DUTHIE PARK, ABERDEEN.—I can fully endorse the remarks of Mr. William Cuthbertson (p. 124) on the beautiful Duthie Park, also the compliment he pays to the able superintendent. I enclose a cutting from the *Aberdeen Evening Express*, which shows the desire of the town council to render the park still more attractive and interesting to the public. *G. W. Cummins, Balmedie Gardens.* [The cutting shows an extensive, pleasing, cruciform glasshouse, with a central dome, high sides, and a lantern roof, the building standing on a slightly elevated platform, approached by flights of steps, and a sloping path. ED.]

EUCALYPTUS GLOBULUS IN SCOTLAND.—Having read several letters in the *Gardeners' Chronicle* about these trees, my experience in the open here may be of interest. Some fifteen years ago a plant of Eucalyptus Globulus was put out against a south wall of this house. The plant has thriven since, and now covers the entire wall, the top of the tree having been cut off many years ago to encourage the branches to spread. In 1894 this plant flowered freely. I gathered the seed in 1896, and sowed it in February, 1897. Almost every seed came up, and these are now splendid young plants, all of which I intend planting out when two years old. In the autumn of 1897 I planted in the woods two young E. Globulus, about 7 feet high, both these have grown rapidly, one making a growth of 9 feet 4 inches during the past summer. This plant is growing in a very wet peaty soil; the measurement was taken on September 30, and is accurate. Seventeen degrees of frost was registered here in November last, but neither plant was in the least affected. *Logan, Mull of Galloway, N.B.*

STRAWBERRY NOBLE AND ROYAL SOVEREIGN.—There appears no reliable time to reckon on the ripening of forced Strawberries. Last year my Nobles and Royal Sovereigns were both ripe in February, within two days of each other. This year, although both were housed the same day, and in the same house, Royal Sovereign was ripe on February 16, but the Nobles will not be ripe for some days. This will bring them nearly three weeks later than Royal Sovereign. *Edward Bennett, Farnborough, Hants.*

PRUNUS PISSARDI IN LATE WINTER.—There is sharp frost outside, and a dense fog, though not sufficient to hide from view the fact that the trees immediately contiguous have their branches wreathed with rime; but inside, in my cold glass-house, this Japanese Plum is laden with blossom. The plant is in the form of a low standard, occupying a 12-inch pot; it has a head some 5 feet through, and every branch and twig is laden with white blossom from the centre to the extremest points. The mass of snowy blossom is singularly profuse; and I need scarcely add the specimen is greatly admired. As I am compelled through exigencies of space to keep the plant reduced in size, as soon as the blooming time is over I prune back quite hard, leaving a mere skeleton, but shoots are speedily thrown out, and by mid-summer there is a dense head of reddish claret-foliage, and the shoots bearing this produce the bloom of the spring. The plant, with its bright foliage, forms an ornament in my forecourt garden all the winter. If gardeners only realised what a charming object this plant can be made to be, they would grow it largely in pots for cold house and conservatory decoration at this season of the year. I think it is better adapted for a cold house than a warm one, because I think that the warmth would provoke growth; while, in a cold house, without the stimulus of artificial heats, there are only a few leaves to be seen at the points of the shoots. I have shown that this Prunus is amenable to rough treatment; a plant will also do well in a pot for years, provided some fertiliser be used during the season. I have employed ichthemic guano with excellent effects, placing a thin layer upon the surface once a week, and watering it in. In summer, owing to the plant being in a pot filled with roots, the pot is kept standing in a pan of water. There are few subjects so easily managed, which are so useful as Prunus Pissardi; heaping up its flowers in happy plenteousness in spring, and then putting on a brilliant robe of leafage in summer and autumn, which it retains until they drop. *R. D.*

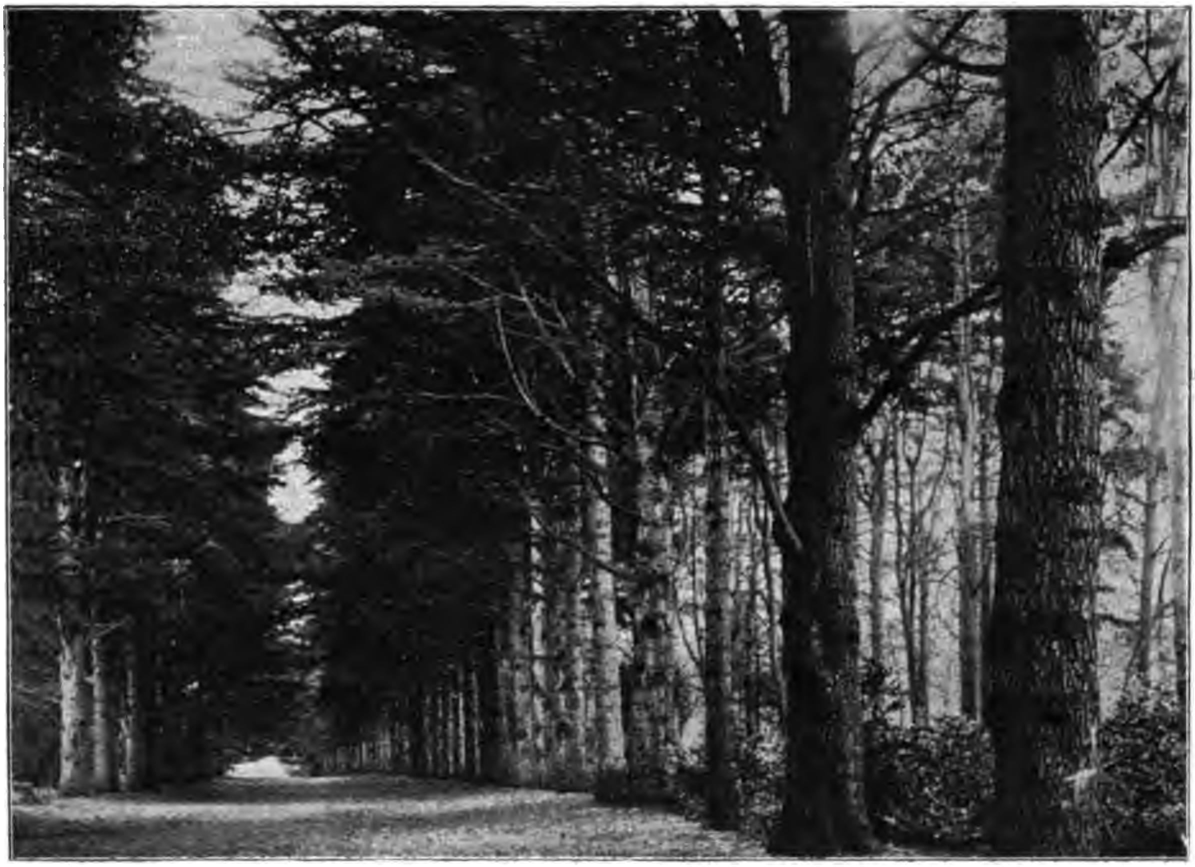


FIG. 52.—THE AVENUE OF CEDARS OF LEBANON AT DROPMORE. (SEE P. 138.)

FROST AND FOG.—It is a common saying in Hampshire, "So many fogs in March; so many frosts in May." I have known old gardeners and husbandmen who held to this belief with all the fervour of devotees; but I could never get from any one of them the reason of the connection between the two. This belief (for it amounts to a belief) is probably based upon some observation made in times past, which may possess an amount of credence it is scarcely wise to scoff at. It is doubtless a remnant of the old weather lore, which abounds in country places, and which is handed down from parent to child as of undoubted credibility. Can anyone throw light upon the *rationale* of this country expression. *R. D.*

BEGONIA GLOIRE DE LORRAINE.—I have about forty plants of this fine variety, which were raised from cuttings struck early in May, 1898, in strong bottom heat. When the cuttings were well-furnished with roots, they were removed to a house having an intermediate temperature. After a few re-pottings they flowered in small 32's in September, and they are still flowering profusely. I know of no flowering plant for which so many uses can be found, and I have had plants which have flowered beautifully for six weeks in succession. With regard to female flowers, I had six plants which exhibited from ten to thirty female flowers each, the seeds of which I carefully harvested, and I have now as much seed as one could place on a sixpence. I am about to sow this seed in the hope that it will have germinating power. *Jas. Moir.*

PHORMIUM TENAX.—In your issue of February 25 a correspondent makes mention of seeing a fine plant of Phormium tenax growing in a garden at Bishops Teignton, in Devonshire, without winter protection. It may be interesting to him to know that there are at present in the nurseries of Messrs. Alex. Dickson & Sons, of Newtownards, co. Down, a large number of splendid specimens of both this and the variegated variety, which have stood out for many years, without the slightest protection, and have now attained large proportions. *W. F. Gunn.*

THE VISCUM ALBUM.—I have from time to time made a few remarks on the above parasite, and find from long observation that many varieties differ in habit very greatly—that there are some that are very compact in growth, with very small foliage, and others much coarser and longer in growth, and with very thick leaves, having the fasciated form, variegated, and double parasitic forms. The remark I am about to make is, that two kinds may be produced from the same seed, one part of the plant differing from another part. I have two specimens showing this peculiarity, and feel quite sure myself it is correct (but what science may say remains to be stated), as very frequently a berry produces two shoots, and attaches itself to the tree, showing a proof of the correctness of the assertion. The old berries that are left on the plant sprout in themselves after attaining a certain age, that is, being fully ripe. There are often some berries left on the plant till the next crop, which doubtless would grow if put carefully and securely on the rind, but not having tried them I cannot say; but I fully believe it would succeed, as the berry, if good, will sprout on anything, on even a cannon-ball, stone, or on a dry fence, but lacking the nutriment required it dies. Doubtless, some of the more learned in such matters, and possessing more botanical knowledge, will give their views (should they think the remarks made worth their notice), and their experience with this parasite. The specimens alluded to are from nine to twelve years old, so that my observation of them is not very limited. *Justus Corderoy.*

FILMY FERNS IN A COOL FRAME.—I read Mr. Swan's remarks about the cultivation of filmy Ferns with interest. We know that the plants dislike heat, and are most at home in shady, cool pits, or glass-cases, if severe frosts are guarded against. In the gardens at The Hendre we have, as has been remarked in the pages of this journal, a glass-case of this kind on the north side of a high building, in which Todeas, Hymenophyllum, &c., thrive admirably. My object in writing is to point out that although filmies are able to withstand some degree of cold without injury, as I have proved several times in the last twenty years, yet there is a certain limit, and beyond which some species are injured. In February, 1895, we had unusually severe frosts, and when, on one occasion, 32° were registered, the Fern-case, although being well protected with mats and litter, the plants, on being examined, were found to be thickly coated with hoar-frost. The coverings, however, were kept on the case till the frost had quite disappeared, hoping that all would be well with the plants. This was not so, however, for plants of Todea pellucida were killed, and a fine specimen of Todea superba lost all of its fronds, as well as the undeveloped ones, none forming in 1895. In the spring of 1896, a whorl, however, appeared, and the plant now has upwards of thirty fronds, but they are not as large as those it possessed at the time of the frost. Todea plumosa, Trichomanes radicans, T. dissectum, and T. dilatatum withstood 32° of frost without any apparent ill-effects, and likewise Hymenophyllum tunbridgense and H. Wilsoni, as they might be expected so to do. *Thos. Coomber.*

FRUIT REGISTER.

NOTES ON SOME LATE WINTER PEARS.

AFTER Winter Nelis, a delicious Pear which is in season in December, and whose fruits come finest on wall trees, Passe Crassane is one of our most valuable Pears, keeping late and becoming fit for table use in January, and lasting for about five weeks. The tree must be trained on a south or west wall, and in a hot season it will reach perfection. Ne Plus Meuris is a trusty variety, which is fit for dessert as late as March; if it have faults these are smallness, and sometimes grittiness, but good cultivation results usually in a fair size and excellent flavour. The tree bears well in most soils.

Glou Morceau is as good a variety almost as the last, and is one of the largest of the late keepers. It is improved in flavour by keeping, and generally, if it be left on the tree till November, with suitable treatment in hastening or retarding ripening, Glou Morceau has a season of two months. The fruit when well exposed to the sun is always of a fine yellow tinge. It is buttery juicy, but sometimes gritty at the core. Josephine de Malines and Bergamotte d'Esperen are our latest dessert varieties, and to have them in good condition they should not be gathered, or, at the least, not all of them, before November, or shrivelling will occur, and flavour will be lacking. I have kept these two varieties till the month of May in passable condition.

It need scarcely be said that these late varieties should be handled and stored with the utmost care, wood-wool or other soft material being laid in the gathering baskets and on the fruit-room shelves. The Pear-room should be dry and airy, and the fruit laid in a single layer, covering them with paper. When Pears are sent to table each variety should be labelled neatly, so that the employers may know what the variety is. *W. A. Cook, Compton Bassett Gardens, Calne.*

FLORISTS' FLOWERS.

SINGLE-FLOWERED CHRYSANTHEMUMS.

To provide flowers for exhibition in a cut state, disbudding is necessary, in order to increase the size of the blooms; but as decorative subjects, I am not in favour of cultivating single flowers on what is known as the large-bloom system. For purposes of decoration, either as plants in pots or as cut flowers, the plants should be permitted to produce long sprays, branching freely in a natural manner. Many varieties belonging to this section are sweetly perfumed; that known as Mrs. Langtry is especially so, and a freely-flowered plant is sufficient to perfume a whole house.

February is a good time to insert strong, healthy cuttings, and two may be put into each 2½-inch pot, using sandy soil. Place them in a cool-house, and when the plants are 4 inches high, pinch the tops from the shoots, in order to induce the plants to make lateral branches. Re-pot the plants before they become in the least root-bound, and seek to keep the growth as stocky as possible. Pots 8 and 10 inches in diameter are sufficiently large. Indeed, the latter size would afford room enough for three plants. To obtain plants of various sizes, some of the plants may be again "pinched" when they have made 5 inches of additional growth. Subsequently, as the plants grow and make natural breaks, the number of shoots to each will be considerably increased. Beyond loosely tying the branches to a few stakes in each pot, no interference with the growth will be necessary. The plants will then form as many buds as possible, and subsequently produce charming sprays of blooms 2 feet long. The varieties are now numerous, and it is not wise to grow any but the best.

The following are a good selection:—Miss Mary Anderson, white shaded rose; Miss Annie Holden, a creamy-buff sport from the above; Fairfield Beauty, rich velvety-crimson in colour, and of exquisite form; Annie Heard, pure white, of medium size; Admiral Sir T. Symonds, blooms deep yellow, extra large; Mrs. A. E. Stubbs, pure white; Purity, also white, very free; Souvenir de Londres, crimson; Oceana, silvery blush; Jane, an old favourite, pure white; Earlswood Beauty, primrose; Mrs. C. H. Seeley, white, extra fine; Millie Agate, blush; Springfield Beauty, maroon; Earlswood Glory, white with green disc; Golden Star, rich yellow, shaded bronze; Florence, blush-pink; Mrs. Langtry, pale-pink, fragrant; and Miss Rose, pink, very free. *E. M.*

FOREIGN CORRESPONDENCE.

SPECIES OF SELAGINELLA WORTHY OF CULTIVATION.

In the number of the *Gardeners' Chronicle* for December 17 last, Mr. G. B. Mallet describes some species of Selaginella, and touches upon their cultivation. I should be glad to add a few remarks. Among the species of larger growth the following are as beautiful and worthy of cultivation as those named by Mr. Mallet, viz., S. atroviridis, Spring, is an oriental species, with a sub-erect and decompound dark green fronds (if the term frond may be adopted for the branches of Selaginellas). The fronds become a half to 1 foot long. It is a plant of easy cultivation, and has a good effect when grown in large pans. S. atroviridis seldom produces spikes. This species belongs to the same group as the well-known S. Martensii. S. Breynii, Spring, may be regarded as the most beautiful species of the uncinate or plumose group. Its stems are entirely trailing, and bears sub-erect, pinnate, branched fronds; the lateral leaves are of a bright golden lustre, that renders the plant very effective, and the better if several plants are planted together into one large pan.

S. flagellifera, of which Mr. J. G. Baker, in his excellent monograph of the Selaginellas, in the handbook of *Fern Allies*, says is a form of plumosa, introduced from Fiji. We find it sometimes cultivated in English ferneries—for instance, in the far-famed fernery of Messrs. Birkenhead, at Sale, near Manchester. We also received most of the following described species from Messrs. Birkenhead. S. flagellifera is valuable for the same purposes as plumosa.

S. tassellata, Hort. Bull, is one of the most interesting species we know of. The lateral fronds are large, and much dilated on the upper side at the base; the bracts of the spikes are extremely long and ciliate. We cannot explain the meaning of the specific name "tassellata." It is a very distinct and ornamental stove Selaginella.

S. umbrosa somewhat resembles caulescens. It is a very pretty upright-growing variety, of straggling habit. The fresh green colour of its fronds makes a charming contrast with its bright red stems. Selaginella erythropus grows quickly in a temperate greenhouse.

S. Victoriæ, Moore, is, I think, the most valuable species next to grandis and Wallichi. Its sub-erect, sarmentose stems become 3 to 4 feet long, and produce large fronds with long caudate pinnæ. The upper-side fronds are of a dark-green colour, that may have given occasion to the synonym "atroviridis," Spring. With respect to its cultural requirements, these are attended to by Mr. Mallet in the above-mentioned article. A species quite different from all other cultivated Selaginellas is S. oregana (Eaton). In its habit it is more like a Lycopodium than a Selaginella. Its thin stems are pendent, and grow 6 feet in length; its fronds are uniform, and for that reason it is included in the rupestris group. S. oregana is worthy of cultivation, and its trailing habit makes it suitable for baskets and hanging vases. It also has a very good effect in masses.

Of small-growing, moss-like species, I only name S. Poulteri; the others are known well enough, except, perhaps, the two varieties of Kraussiana, viz., Stansfieldi and Browni; these are nice varieties, suitable for covering a rockwork fernery. In German gardens S. Kraussiana is mostly called denticulata. This is quite wrong; denticulata is a Mediterranean species, totally different in habit from S. Kraussiana. *C. K. Schneider, Darmstadt.*

NURSERY NOTES.

CARNATIONS AT EXMOUTH.

THE winter-blooming varieties of Carnations may be easily grown if the necessary convenience for their cultivation is available. It is best to cultivate them in considerable quantity, and devote a good portion of a house, or, better still, the whole of it, to the accommodation of the plants. The exact attention and treatment they require can then be given them, without reference to the needs of other plants. Satisfactory results may then be confidently anticipated.

I had lately the pleasure to see the collection of Mr. W. J. Godfrey, at the Claremont Nursery, Exmouth, and was surprised to find so fine a display of bloom there. The vigour of these plants and their free-blooming qualities enable me to recommend the varieties as most desirable ones to acquire. They have been raised by Mr. Godfrey. Among the white-flowering sorts Pearl Beauty is prominent; it has large and full flowers, of fine form, and pure white in colour, they were also sweetly scented. Lady Doreen Long is one of the most handsome varieties ever introduced. The colour is clear yellow, with a slight pencilling of carmine-pink, very large, of rare substance, and a very strong grower. Mrs. Richard Ley is rich salmon-pink, with smooth and even petals. Miss Nita Bloxsome is in colour similar to Madame Thérèse Franco, but is more robust and free flowering, and the blooms are smoother. Many growers are discarding Madame Th. Franco for Miss Nita Bloxsome. Miss Adam-Hogg is of most desirable form; the blooms are similar to those of Miss Joliffe, but are larger, the colour is bright glowing salmon, quite distinct, and very fragrant. The plant is a dwarf and robust grower. Lady Gertrude Rolle reminds one of the border variety Duchess of Fife in colour, but is of a richer and more solid rose-pink. In habit the plant is dwarf, robust, and very free; it is one of the very best of its colour. Nellie Stevens is in colour similar to the blush Malmaison, perfect in form; the petals are of good size and substance, and the flower charming. Exmouth Gem has blooms of large size, of pale salmon-pink colour; Mrs. Herbert Stewart is a very handsome flower, measuring nearly 3 inches across, and is one of the most striking. The colour is rich rosy carmine, and is distinct and attractive. Exmouth Scarlet is a decided improvement on Winter Cheer, the colour being brighter, and the plants have more of the tree habit with them. Mr. Godfrey is now working up a stock of this variety as rapidly as possible. All other varieties, too, are being increased in large quantities. There are thousands of plants that were struck in heat last November that are now potted into thumbs and large 3-inch pots. In the propagating-pits there are even greater quantities now making roots. The healthy condition of the plants was very observable, and no disease was seen. Batches of the dwarf, yet free-flowering Godfrey Richardia, are full of spathes, though everyday quantities of blooms are cut from them. *W. Swan.*

Primulas at Farnham Royal.

How pleasant is it to look over a fine collection of Chinese Primroses under the bright light of a high country district! Messrs. James & Sons, whose houses are on high ground, enjoy pure air and freedom from smoke, do not grow plants strong or very large; every one of the many hundreds here are in 48's, the object being, of course, to promote good bloom-production on compact form and foliage, and thus facilitate fertilisation and seed production. For the Primula naturally flowers in the winter, and because of the absence of insects—and a desirable absence too for the grower—artificial fertilisation has to be performed, the whole of the plants being gone over repeatedly whilst in bloom. The plants are for this purpose placed in blocks of strains and colours, and whether few or many, almost every one in its place seems to be the duplicate of the other. Some sparing varieties produce but little seed, due doubtless to the long continuance of in-breeding; but that fact may help to induce breeders or raisers not to be too continuous in such matters, lest they defeat their object eventually by producing strains that are absolutely barren. With these tender plants we are dependent entirely on seed for propagation, hence the importance of securing good seed producers, as well as fine flowers. No doubt the moderate culture, pure air, and light, found at Farnham Royal, conduce in a high degree to success in this matter. The new stellata or pyramidal forms, seeds most freely, and presents a good seed parent for crossing with large-flowered varieties. Still, it would be a misfortune were that pretty plant to suffer in form if inter-crossing destroyed its free blooming pyramidal habit, and reduced it to the level of the ordinary florists' strains. The varieties here largely comprise the finest of the Reading stocks, and amongst them are some superbly deep rich coloured forms, such as Crimson King, deepest of all, the flowers of fine form, rich crimson, having a clear lemon eye, round which runs a belt of maroon; this is new, and wonderfully true to character. Next comes a brilliant fiery red or scarlet that is a long way superior to its progenitor, Chiswick Red. How a mass of this glowed in the sunlight as with fire, and was wonderfully effective! Giant Terra-cotta, really a rich carmine, is superb and does not discolour; and Giant Purple has splendid flowers of a rich magenta hue, and is quite a gem of its shade. The blue strain is here in strong evidence, quite a rich and striking lavender-blue; and one of the loveliest is Giant Pink, a delightful, soft, rosy-pink colour that commands warm admiration. Giant Royal White, on dark palmate leafage, is the finest and purest of all the section; it seems impossible to excel this for size, or in purity. There are many others of the single forms grown, but all cannot be indicated. Doubles are fine, especially the rich blood-red, salmon or pink, and the whites are both dark and light green leafage. The former seems to have the finest and purest flowers, but all the stocks of the many strains are of the very best, and in bulk make a beautiful show. *D.*

SCOTLAND.

A WINTER GARDEN FOR ABERDEEN.

At the meeting of the Aberdeen Town Council on Monday, the 16th ult., the Convener of the Links and Parks Committee moved the adoption of a report by the City Architect with regard to the proposed winter garden in the Duthie Public Park. The building is to be 108 feet long, 36 feet wide, with two side-wings of 30 feet in length, by 36 feet wide, with a circular dome in the centre. Arrangements will be made to allow of the different parts of the building being heated to different temperatures. The total cost is £1550.

Natural History and Antiquarian Society of Aberdeen.

Thanks to the energetic and indefatigable efforts of Dr. James W. H. Trail, Professor of Botany in Aberdeen University, and a few other local gentlemen, a new era, from which the happiest results are anticipated, will be inaugurated for this Society on Friday evening, 24th inst. In anticipation of Friday's meeting, 117 ladies and gentlemen have been added to the membership of the Society. Of this number some two-thirds reside in and about Aberdeen, the other third being resident in, or connected with the surrounding counties. At the meeting on the 24th inst., a short address was given by Professor Trail, on the work and place in Aberdeen of the Society, and there was an exhibition of objects of interest in the botanical rooms of Marischal College, where the Society intend holding their meetings. The office-bearers of the Society are as follows: President, Professor Trail; Vice-presidents, Mr. William Ferguson, LL.D., of Kinmundy; and Mr. George Sim, naturalist, Aberdeen. Members of executive: Dr. Alexander Brown, Mr. W. Forest, Mr. Alexander Mackie, and Dr. W. H. Williamson.

LAW NOTES.

FRAUD ON CHARD NURSERYMEN.

At Birmingham Quarter Sessions, on Monday, before Mr. T. S. Soden, Deputy-Recorder, John Sexton, 40, salesman, was charged with obtaining, by false pretences, from Messrs. Jarman & Co., nurserymen, of Chard, forty-eight Apple-trees, and seventy-two Rose-trees, value £7, with intent to defraud. Mr. Stubbins prosecuted, and Mr. McCardie (instructed by Mr. Coode) defended.

The first witness called for the prosecution was Mr. H. Seagon, who stated that he was the representative of Messrs. Jarman at their stand at the cattle show, Bingley Hall, Birmingham. While there, either on November 29 or 30, the prisoner gave him an order for four dozen Apple-trees, £5, and six dozen Roses, £2; at the same time handing him a memorandum form which stated that the prisoner was a grocer and provision merchant at 10, Edward Street, Redditch, with warehouse at Unicorn Hill. On these representations Mr. Seagon accepted the order, and the goods were despatched from Chard on December 20, packed in one crate, one basket, and one bundle. The witness further identified a memorandum form on which the prisoner had written to Messrs. Jarman on December 29 for seven dozen dwarf Roses under the name of "J. W. Johnson, grocer and provision merchant, 2, Gough Road, Sparkbrook, Birmingham." Messrs. Jarman's suspicions, however, being aroused, these trees were not sent.

Various witnesses were called to prove that the prisoner neither carried on a business of grocer or provision merchant at the addresses given, or possessed any trade stock whatever.

The prisoner stated that the Rose-trees were ordered by him for a Mrs. Johnson, but Mrs. Johnson's "garden" consisted of a bricked yard at the back of the house of about 14 by 10 feet.

Mr. McCardie contended that prisoner made *bonâ fide* purchases, but was merely unable to pay.

Two goods porters were called to prove that the prisoner re-consigned the trees from Redditch Street to Messrs. Parker, Kirkam & Parker, Auctioneers, 35, Temple Street, Birmingham.

Mr. Parker, auctioneer, stated that the prisoner wrote him, saying that he had some trees for sale, and asked him to include them in his sale of the following day or so, but the trees arrived too late, and were consequently held over till January 5. In the interval prisoner came to Mr. Parker and asked for an advance on the trees, which was refused. A day or so afterwards Mr. Parker had some of the trees unpacked, and found on them labels bearing Messrs. Jarman's name, and being somewhat suspicious, he communicated with Messrs. Jarman, with the result that the latter firm placed the matter in the hands of the police. The trees, having been out of the ground so long, were dried up, shrivelled, and fetched only £2 3s.

The jury found the prisoner guilty on both counts, and the Deputy-Recorder sentenced him to six months' imprisonment, with hard labour.

Obituary.

Rev. Canon Du Port.—Another of the older generation of British mycologists has passed away in the person of the Rev. Canon Du Port, who died at Denver Rectory, in the county of Norfolk, on February 21, 1899. James Mourant Du Port, the son of James Du Port, Assistant Treasurer of the States of Guernsey, was born at St. Peters Port on April 14, 1832. He was educated at Elizabeth College, from whence he obtained a scholarship at Caius College, Cambridge. He took his B.A. in 1855, being tenth wrangler, and subsequently became Dean of his College. He was Hebrew lecturer from 1855 to 1862. In the latter year he was appointed to the vicarage at Mattishall, where he remained till 1884, when he became rector of Denver. In 1881 he was made Honorary Canon of Norwich, and in 1890 Rural Dean. Throughout his life he was keenly interested in natural science. For a long series of years he conducted meteorological observations both at Mattishall and Denver. His greatest pleasure, however, was in the study of botany. Not only did he possess a sound practical knowledge of the phanerogams of his own country, but also the floras of France and Switzerland, as well as that of Egypt received his attention. He was best known, however, as a fungologist, and for many years was a regular attendant at the fungus forays of the Woolhope Club, of which field club he was an honorary member. His knowledge of Latin was greatly appreciated by his fellow-members, and it was always at their service, for he spared no trouble in unravelling the intricacies of the descriptions of the "Hymenomycetes" and "Monographia." Always ready to help, his genial manner and kindheartedness made him a universal favourite amongst the Woolhopians. For many years he was a member of the Société Mycologique de France, and attended several of the forays, notably in 1887, 1891, and 1896, where his knowledge of the French language stood him in good stead. Mainly interested in the Hymenomycetes, there was nothing in the shape of a fungus which came amiss to him. One of the species found by him at Mattishall, Russula Du Porti, was named after him. It is figured in *Cooke's Illustrations*, pt. 1042. He contributed the following papers, "On some species of Tricholoma not easily distinguished" (*Woolhope Trans.*, 1883); "On the colours of the fungi as indicated by the Latin words used by Fries" (*Ib.*, p. 113); "The unexpected appearance of two species of fungi in a field quite recently under cultivation" (*Ib.*, 1890, p. 122); "On the fungoid diseases of cereals" (*Norfolk and Norwich Trans.*, 1880, p. 194); "On some of the rarer fungi found near Mattishall in 1880" (*Ib.*, p. 200); "On a remarkable appearance of fungi" (*Ib.*, 1893, p. 558). *C. B. P.*

MAJOR H. L. BARTON, D.L., J.P.—With deep regret we have to record the death of Major Barton, of Straffan House, co. Kildare, on the 23rd ult. He was laid to rest in the family grave at Straffan Church on Tuesday, the 28th ult., and by his express wish the coffin was conveyed thither borne on one of the carts from the home farm at Irishtown. This vehicle was painted black, and draped very tastefully, and the coffin upon it was covered with fresh foliage and flowers, in the shape of wreaths and tokens from friends. Major Barton was 75 years of age, having been born at Bordeaux in 1823, but he had lived on his Straffan estate for many years, and thoroughly enjoyed and liberally supported both farm and garden. His celebrated breed of Shorthorns, was well known throughout the British Isles. Although a very enthusiastic sportsman, the garden under the more immediate care of the Hon. Mrs. Barton, was also a never-failing source of pleasure and interest to him. The Dog-wood, and the Cardinal Osiers are very bright and cheerful beside the river at Straffan just now, and the Snowdrops also under the great Lime-trees on the lawn. Deceased's widow, the Hon. Anna Barton, was a sister of the late and of the present Lord Clarina, and is widely known for her appreciation of horticulture.

SOCIETIES.

ROYAL HORTICULTURAL.

February 28.—Tuesday last was preceded by so cold a night, that the display made at the usual fortnightly meeting was less in extent than the preceding one. Visitors were numerous, and not a few of them stated that their thermometers had registered as much as 15° of frost; consequently, it was not surprising that exhibitors, especially those who would have brought the warmer-growing Orchids, were not prepared to incur the risk that would have attended the bringing of their plants in quantity to Westminster. Nevertheless, there was a moderate show of Orchids, and the Orchid Committee recommended the awards of two First-class Certificates and five Awards of Merit. The Floral Committee recommended the award of a First-class Certificate to a pure white, double-flowered variety of Prunus persica, and Awards of Merit to Rhododendrons × Hercules and Exquisite, each of them valuable varieties of the hybrids obtained from R. javanicum There were groups of Cyclamens, Cinerarias, Narcissus, and other hardy plants and flowers.

The exhibits before the Fruit and Vegetable Committee were of little interest.

In the afternoon an interesting lecture upon the "Colours of Insects" was given by Mr. Blake, and the subject was freely illustrated with lantern views.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. Geo. Paul, R. Dean, Wm. Howe, Jas. Hudson, J. F. McLeod, J. Jennings, Chas. T. Druery, C. J. Salter, Thos. Peed, H. Selfe-Leonard, W. Bain, J. D. Pawle, C. R. Fielder, Jas. Walker, Chas. E. Shea, E. T. Cook, Herbert J. Cutbush, Harry Turner, John Fraser, E. H. Jenkins, and J. W. Barr.

Messrs. W. Paul & Son, Waltham Cross Nurseries, Herts, showed some prettily-flowered plants in pots of Prunus, P. triloba, P. Myrobalana rosea plena, &c. P. triloba is a very double pink-coloured flower upon shoots with partially developed leaves, and suitable for cutting. Several varieties of the Peach with pink and deep rose-coloured flowers were attractive, as also was the double Almond. Pyrus Malus floribunda is an effective flowering shrub, by reason of its excessive freedom in producing bloom. Forsythia suspensa, one of the prettiest of the Forsythias, was also shown. The group was faced by plants of variegated Privet and Euonymus (Silver-gilt Banksian Medal).

Mr. F. Miller, 110, Fulham Road, South Kensington, London, made a fine show with Cinerarias, exhibiting dwarf freely-flowered plants of brilliant colours. These were interspersed with Ferns; and there were cut Narcissus blooms, Freesias, various floral designs, and wreaths (Silver Banksian Medal).

Messrs. Sander & Co., St. Albans, exhibited Acalypha hispida (Sanderi) as a standard, with a clear stem of about 2½ feet, afterwards several branches, all of which were well flowered.

A fine display of Cyclamens was made by the St. George's Nursery Company, Hanwell, London, W. This group of about six score plants represented a strain remarkable for the size of its flowers, and for the decided colours they present. The extra-large size or giant strain that is not at present associated with the best of form, may be capable of improvement in the latter respect. The fimbriated strain was also represented, but the value of the exhibit consisted most in the florist's normal varieties (Silver-gilt Banksian Medal).

From Purnell Purnell, Esq., Woodlands, Streatham Hill, S.W., was shown a very large group of Narcissus in pots, and a smaller one of Cinerarias. A most commendable amateur's exhibit, that was recommended a Silver Flora Medal.

Mr. Thos. S. Ware, Ltd., Hale Farm Nurseries, Tottenham, showed a group of Narcissus in pots; some of the more popular varieties were represented by strongly-grown plants, and we also noticed in this exhibit a plant in flower of Orchis fusca, a purple-flowered species with large and broad green leaves; varieties of Cyclamen Atkinsii, bluish-flowered Primulas, the very dwarf-growing Gaultheria procumbens, &c. (Vote of Thanks).

Messrs. Barr & Sons, 12, King Street, Covent Garden, London, had a similar exhibit, but included, in addition, plants of Lachenalias, Chinese Primulas, Cinerarias, &c. The curious Iris tuberosa, with purple and green flowers, was represented by cut blooms, and the earliest of the Anemones and Chionodoxas were shown in pots (Vote of Thanks).

Messrs. Paul & Son, The Old Nurseries, Cheshunt, showed forced plants of Lilac alba grandiflora, also plants of Helleborus caucasicus punctatus, and a number of varieties; and H. orientalis, Saxifraga lutea purpurea, S. Boydi alba, Megasea Stracheyi, &c., and two beautiful blooms of L'Innocence H. T. Rose.

From Mr. Jno. Russell, Richmond Nurseries, Surrey, was exhibited a group of plants of a fine white-flowering variety of Viburnum Tinus (Laurustinus). The plants were dwarf standards and bushes, and all of them were full of bloom; Skimmia Fortunei, well berried; and Hedera arborea fructu-luteo, a large-leaved Ivy, with yellow berries, were likewise included in the group.

Messrs. Robt. Veitch & Son, Exeter, exhibited blooms of Primula floribunda var. Isabella, with larger and paler blooms than the type, being cream-coloured instead of yellow.

Some splendidly cultivated Violets of the varieties Marie Louise and Neapolitan were shown by Lady Margaret Boscawen, Tregye, Perranwell, Cornwall, for which a Cultural Commendation was awarded.

Beautiful sprays of Asparagus Sprengeri, with white and red berries, were shown by Mr. J. Hudson, gr. to Leopold de Rothschild, Esq., Gunnersbury House, Acton (Cultural Commendation). Mr Hudson also exhibited a fine variety of Clivea named "Vivia."

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea, exhibited a small group of plants in pots of a most decorative variety of the Peach named Prunus Persica magnifica. The flowers are very large, and in colour deep red. Messrs. Veitch also showed a plant in flower of Hippeastrum procerum, a Crinum-like plant with lilac-coloured flowers. It is a native of South Brazil.

AWARDS.

Prunus Persica vulgaris alba flore-pleno.—This is a beautiful white-flowered Peach, with large-sized double blooms. The plant exhibited by Messrs. W. Paul & Son, Waltham Cross, was dwarf and very freely flowered, being a most decorative object (First-class Certificate).

Rhododendron × Hercules.—A greenhouse Rhododendron of the R. jasminiflorum × javanicum group of hybrids. In colour the flowers are a shade of apricot-yellow, but the stamens and anthers being red, afford a pleasing contrast. Each flower is from 2½ to 2¾ inches across, and most of them possess six or seven petals in place of the usual number, five. A plant of considerable size was exhibited, and bearing several large trusses of flowers, afforded ample proof of the decorative qualities of this variety (Award of Merit). From Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea.

Rhododendron × Exquisite.—This is a hybrid, we are informed, from the two species R. javanicum and R. Teysmanni from Sumatra. The flowers of this hybrid are a little less in size than those of R. × Hercules, and the colour is a shade of bright yellow, approaching golden. The anthers have a considerable effect, being purple. It is a valuable addition to these beautiful Rhododendrons that Messrs. Jas. Veitch & Sons, and their Mr. Heal, have originated (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. J. O'Brien (Hon. Sec.), De B. Crawshay, T. B. Haywood, W. Thompson, H. T. Pitt, A. Outram, J. Douglas, E. Hill, H. J. Chapman, H. Little, H. Williams, H. Ballantine, F. J. Thorne, Norman C. Cookson, and Major Mason.

A dull, foggy, frosty morning, led us to suppose that Orchids would not be abundant at this meeting, but on the contrary they formed a very interesting and showy part of the same.

Continental cultivators were represented by M. Chas. Maron, of Brunoy, Seine-et-Oise, France, the raiser of so many fine hybrids. Two of his plants fairly eclipsed his former efforts, viz., Lælio-Cattleya × Ernesti var. Princess Olga (Cattleya Percivaliana ♀, Lælia flava ♂), one of the most charming hybrids of its class, with bright chrome yellow flowers, the lip having an orange base, and dark, red-brown marking; and L.-C. × callistoglossa var. J. Leemann (L. purpurata var. × C. Warscewiczii imperialis), one of the most gorgeous of hybrid Lælio-Cattleyas; and both of which secured the highest award. Mr. Maron also showed a fine plant of the true Cypripedium concolor tonkinense, with clear yellow flower, fully one-third larger than the ordinary C. concolor.

M. Jules Hye-Leysen, Coupure, Ghent (gr., Mr. Coen), sent a fine three-flowered inflorescence of Odontoglossum crispum Franz-Masereel, cultivated up to the highest state of perfection, its flowers being for the greater part of a rich rose-crimson, delicately picked out with white. So marked was the improvement Mr. Jules Hye's cultivation had made, that the committee recommended a Silver Medal for it. Mr. Jules Hye also showed Cypripedium "Surprise," a handsome yellow hybrid.

Baron Sir H. Schroder, The Dell, Staines (gr., Mr. H. Ballantine), showed a charming yellow Odontoglossum, which Professor Reichenbach had named O. × Vuylstekianum, but which was adjudged to be an O. × Wilckeanum; also the rare natural hybrid O. × Cookeanum, and a yellow form of O. Pescatorei, or, more correctly, an unspotted O. × excellens.

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, showed four hybrid Phalænopsis, viz., P. × Cassandra (Stuartiana ♀, rosea ♂), P. × Ariadne (Stuartiana ♀, Aphrodite ♂), P. × Mrs. Jas. Veitch, illustrated in the last issue of the *Gardeners' Chronicle;* and P. × Hebe, a neat flower of the P. intermedia class.

W. Thompson, Esq., Walton Grange, Stone, Staffordshire (gr., Mr. W. Stevens), showed a small group of grand Odontoglossums, for which a Silver Banksian Medal was awarded. It contained Odontoglossum × excellens spectabile, a noble variety, the leading bulb bearing two fine spikes (Cultural Commendation); O. × Wilckeanum concinnum, fine yellow, with brown-red blotches; O. × Coradinei expansum, the finest of its class; and O. crispum Daphne and O. c. Dorothy, two very handsome spotted forms, the latter a small plant, which should develop into a very fine thing.

Messrs. Hugh Low & Co., Bush Hill Park, were awarded a Silver Banksian Medal for a good group, which consisted principally of fine forms of Cattleya Trianæi; with them were good examples of Cattleya Dowiana, Lælia harpophylla, L. cinnabarina, Odontoglossum crispum, O. Andersonianum, Cypripedium insigne Sanderæ, C. × Marshallianum, and various Dendrobiums, including the old but still uncommon D. nobile Tollianum.

F. Knight, Esq., Thundersley House, Essex (gr., Mr. Marston), showed a group of good forms of Cattleya Trianæi, Lælia glauca, L. superbiens, and Odontoglossum Rossii majus (Bronze Banksian Medal).

J. T. Bennett-Poë, Esq., Homewood, Cheshunt (gr., Mr. Downes), showed a group of well-grown plants of Cypripedium × Lathamianum, C. × villosum, &c.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed Odontoglossum × Ruckerianum Crawshayanum, a grand form; O. × Andersonianum Bagaerdianum, and O. Rossii Crawshayanum, both good.

E. Stanley Clark, Esq., Oak Alyn, Wrexham, North Wales (gr., Mr. J. Edwards), showed Odontoglossum crispum "Mrs. Stanley Clark," a very finely blotched form; O. Rossii rubescens, and a hybrid Cypripedium (callosum × Boxalli atratum).

Sir Wm. Marriott, The Down House, Blandford (gr., Mr. Denny), again showed Sophro-Lælia × Marriott (S. grandiflora × L. flava), with bright yellow flower.

D. M. Grimsdale, Esq., Uxbridge (gr., Mr. A. Kitwall), showed good Odontoglossum maculatum, O. triumphans, O. luteo-purpureum sceptrum, Cypripedium Mastersianum, and C. villosum aureum. Major Joicey, Sunningdale Park (gr., Mr. Fred J. Thorne), showed a flower of Lycaste linguella, a large greenish flower, with whitish lip, having a thick callus; also Dendrobium atroviolaceum and Lycaste plana. G. Thompson, Esq., Stamford Hill (gr., Mr. Johnson), showed a good form of Dendrobium nobile. Mrs. Ball, Cheadle, Cheshire, sent a hybrid Dendrobium. J. Rutherford, Esq., M.P., Beardwood, Blackburn (gr., Mr. J. Lupton), showed Cattleya Trianæi Rutherfordiana, fine in form and colour. H. Shaw, Esq., Birch Vale, near Stockport (gr., Mr. J. Cliffe), sent Odontoglossum luteo-purpureum. W. Gould, Esq., Hyfield, near Stockport, sent Lælia glauca.

Messrs. F. Sander & Co., St. Albans, showed a well-flowered plant of the singular fringed Dendrobium Harveyanum.

AWARDS.

Lælio-Cattleya × Ernesti "Princess Olga" (Cattleya Percivaliana ♀, Lælia flava ♂), from M. Chas. Maron, Brunoy, France. A flower of extraordinary beauty; plant approaching L. flava in character; flowers nearly as large as those of C. Percivaliana, but with narrower segments; sepals and petals bright chrome-yellow; lip crimped orange at the base, the centre marked with bright brownish-red. The plant bore two spikes, each with three flowers, borne on scapes some 4 inches in height (First-class Certificate).

Lælio-Cattleya × callistoglossa "J. Leemann" (Lælia purpurata var. × Cattleya Warscewiczii imperialis) from M. Chas. Maron. Flower of the largest of any of the Lælio-Cattleyas: sepals and petals light-rose; lip very broad and finely expanded, of a rich dark claret-crimson (First-class Certificate).

Odontoglossum × Ruckerianum Crawshayanum, from De B. Crawshay, Esq. (gr., Mr. S. Cook). One of the handsomest of its section. Flowers, large, light yellow tinged with dark rose, especially on the reverse side, and handsomely spotted with dark brownish-red (Award of Merit).

Odontoglossum × Wilckeanum "The Dell variety," from Baron Sir H. Schroder (gr., Mr. H. Ballantine). Flowers, bright canary-yellow, the petals and lip finely fringed. Resembling a yellow O. crispum (Award of Merit).

Odontoglossum × Cookeanum (nat. hyb., O. triumphans × O. gloriosum), from Baron Sir H. Schroder. A pretty yellow flower, spotted with chestnut red (Award of Merit).

Odontoglossum × Coradinei expansum, from W. Thompson, Esq., Walton Grange, Stone, Staffordshire (gr., Mr. W. Stevens). A showy form, with large cream-white flowers spotted with brown, and of thick texture (Award of Merit).

Cypripedium × *Surprise* (Sallieri Hyeanum × Spicerianum), from M. Jules Hye-Leysen, Ghent (gr., Mr. Coen). A fine Cypripedium, resembling a large yellow C. insigne, but with more of the form of C. Spicerianum, and white upper portion to the dorsal sepal (Award of Merit).

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., chairman; and Messrs. J. Willard, J. Smith, F. Q. Lane, Geo. Wythes, S. Mortimer, P. C. M. Veitch, A. H. Pearson, E. Shaw Blaker, W. Poupart, Jas. H. Veitch, Jos. Cheal, W. Wilks, Robt. Fife, and Alex. Dean.

Mr. R. C. Notcut, Broughton Road Nursery, Ipswich, showed a dish of fruits of a stewing Pear under the name of Winter Orange, and described as a probable seedling from Verulam. The fruits were of moderate size, deep brown in colour, and some stewed specimens were pronounced by the committee to be very good. The fruits will be again exhibited at the next meeting, and if found to be distinct, the variety may possibly be given an award.

Messrs. R. Veitch & Son, Exeter, exhibited some fruits of Mannington Pearmain Apple, said to have been obtained from the original tree. The fruits were very dissimilar to the variety now in commerce under the above name.

Another Apple named "Rouen" was sent by Mr. H. T. Martin, Stoneleigh Abbey Gardens, Kenilworth.

A large and good sample of Salsafy was shown by Messrs. R. Veitch & Son. It was described as Sandwich Island Salsafy, but had, no doubt, been cultivated in England from seeds obtained from that island.

Appliances for the manufacture of ozone for insecticide purposes was shown by Mr. J. H. Lamfrey, Brockley, Kent. In the generation of ozone, a disagreeable perfume is given off, which is said to kill green-fly, and many other insects. The appliances were not generally considered to be of practical use for the purpose.

Lecture.

THE COLOUR OF INSECTS.

In the afternoon a lecture upon "The Colour of Insects, their Meaning and Use," was given by Mr. H. L. T. Blake. The subject was freely illustrated by lantern views of a most interesting character, and in the course of the lecture Mr. Blake described and illustrated instances in insects of (1) Protective resemblance; (2) Aggressive resemblance; (3) Protective mimicry; (4) Warning colours of insects that are not preyed upon by other insects or animals; (5) Instances of several methods of defence being possessed by one insect or caterpillar. The chair was taken by Sir John T. D. Llewelyn, Bt., and subsequently some interesting remarks were made upon the subject by the Rev. Prof. Henslow.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

By the aid of limelight-views, and under the guidance of Mr. C. H. Curtis (an old Kewite), of the editorial staff of the *Gardeners' Magazine*, a large number of members of the above Association spent a pleasant evening recently at the club-room of the Old Abbey Restaurant in listening to an account of the houses and grounds of Kew Gardens.

EDINBURGH FIELD NATURALISTS' AND MICROSCOPICAL.

February 22.—The fourth meeting of the Society this session was held on the above date, in the Hall, 20, George Street; Mr. W. C. Crawford, President, in the chair.

An account of a bryological excursion to Ben Lawers last June was given by Mr. A. Murray, who, along with another member, had encamped on the Ben for two days, with the purpose of collecting mosses. They began their collection at the Larich burn, every tree, bank, rock, and dyke being covered with them. One rock was curtained with magnificent specimens of Antitrichia curtipendula, which hung over it in festoons a foot in length. Numerous yellow-green patches of Bartramia arcuata, generally dwarf and always barren, covered the banks. Mr. Murray and his friend made a very large collection of species during their short trip, and most of them, pressed and mounted, were exhibited at the meeting. Some of the best finds were Splachnum vasculosum, Tetraplodon mnioides, and Buxbaumia aphylla. It may interest lovers of Ferns to know that many very finely-cut forms of the Brittle-bladder Fern, the Maidenhair Spleenwort, with fronds a foot long; the black Spleenwort, the Alpine Holly Fern, Wilson's Filmy Fern, &c., were noticed. And among the blowing plants may be mentioned Cerastium alpinum, Armeria alpina, Rhodiola rosea, Lychnis alpina, Silene acaulis, Thalictrum alpinum, Saxifraga nivalis, S. oppositifolia, S. aizoides, S. hypnoides, S. cæspitosa, and S. stellaris; Myosotis alpestris near the top, and a perfect cushion of highly coloured Azalea procumbens; Rubus chamæmorus, Cornus suecica, and Meum athamanticum, the last plant filling the air with its peculiar odour. Highland cattle are very fond of feeding on the leaves and fruits, their aromatic flavour being communicated to the milk of the cows. Its root is eaten by the natives as a carminative and stomachic.

Mr. Campbell followed with a paper on "Some Geological Agents, with Illustrations of their Work." The principal agents, he said, were water in the form of ice and as running water, the sea, sand, and plants. Man's action had been the cause of the large tracts of desert land now existing in Asia Minor and North Africa, once both fertile and populous; and by the cultivation at present of large areas of the globe, he said the land was being laid open to rapid denudation by the action of running water, &c.

HEREFORDSHIRE ASSOCIATION OF FRUIT-GROWERS AND HORTICULTURISTS.

February 22.—A well attended meeting of fruit-growers and farmers was held at Hereford on the above date, for the purpose of founding a Fruit-growers Association for Herefordshire. The Mayor of Hereford presided, supported by Sir James Rankin, M.P., Mr. C. W. Radcliffe Cooke, M.P., Mr. J. Riley, and Mr. Beddoe.

Sir James Rankin, M.P., proposed "That an association be formed, and that it be called the Herefordshire Association of Fruit-growers and Horticulturists." He considered the County of Hereford was a good county for the cultivation of fruit, but it had no large centres of population in the immediate neighbourhood where the fruit could be marketed. He would like them to understand, if they formed an association of this sort, they must combine in earnest, and everybody must try to do what he could to forward the objects of the association. Small fruits, he was sorry to see, had generally decreased in cultivation, and there must be more attention paid to the cultivation of the Apple and Pear.

Herefordshire was almost pre-eminent for the cultivation of cider Apples. He assured them the Technical Instruction Committee of the County Council, of which he had the honour to be the chairman, was affording information and instruction on fruit-growing, and that the secretary, who was present, would do all he could to promote the objects of the association. The Technical Instruction Committee would be able to do work to a much larger extent if it received more encouragement. Cultivation of fruit by cottagers was a most important point to encourage. He remembered a tenant of his cultivating three-quarters of an acre, and making £20 a year profit; and if this could be done by one, there was no reason a good many others might not do the same. They must not forget that there was a serious amount of competition from abroad to fight against, especially in hard fruits; but with small fruits, which did not carry so well, we had not so much to fear, and this should stimulate their cultivation.

Mr. J. Riley seconded the resolution. He gave particulars of some of his failures in fruit-growing during the past twenty years, and remarked that if an association similar to what he understood it was proposed to start had then been working, several failures and much needless expense might have been saved him. The association might be of much use in recommending suitable varieties of fruit to plant, and in indicating what stocks should be used for them. The railway companies had the power to make or mar the English fruit trade. With an association of fruit growers they would have a better chance of dealing with the railway companies, who would pay more attention to an association of several hundred members than to one individual. As regards pruning, he found difficulty in multiplying hands for this work, and something might be done in this direction. The Resolution was then adopted by the meeting.

Mr. Radcliffe Cooke, M.P., proposed the comprehensive resolution of the various objects of the association. After enumerating them, he proceeded to say that he was quite in favour of such associations, as for many years past he had endeavoured to persuade the Government of this country to do something to encourage and assist fruit-growing, and if possible, to follow the example of the Government of Canada, who had five experimental fruit farms; other things were grown on them, but chiefly fruit. The result was that one of the first things anyone taking land would do would be to visit the nearest of these experimental stations, where he would get valuable advice as to what to plant, and thus avoid experiments and possible failure. They would also supply him with trees. Whenever he had made the suggestion to the Government to do something of this nature, or make a grant to assist in starting such farms, he was always met with the retort that it was not a matter for the Government; that it must first be taken up through the energy and enterprise of the people themselves. They were now in Herefordshire going to give a practical illustration of that doctrine, viz., taking the initiative themselves. He had received an assurance from Mr. Long that if the County Councils would act in the same way as the Technical Instruction Committee, it was possible they would be able to obtain a grant. He was sorry the County Council had not applied all the money in technical education that they might have done. Herefordshire had not applied half of the amount. Worcestershire had applied all. Mr. Long had told him that if an experimental farm were established for, say, the counties of Gloucester, Worcester, and Herefordshire, there was no doubt the Government would give a grant towards it. The farmers and growers, however, must make the beginning themselves. This beginning they were making by forming the Association. The resolution was carried.

Sir James Rankin, M.P., was elected President of the Association. A committee was elected, and subsequently over fifty of those present became members of the Society.

BRISTOL AND DISTRICT GARDENERS.

February 23.—A large number of members met on the above date to hear a lecture by Mr. W. W. Pettigrew, superintendent of Roath Park, Cardiff. The subject was "An Evening with Our Native Plants," illustrated with limelight views of photographs.

Dealing with the subject in a very interesting manner, Mr. Pettigrew grouped the British plants as follows—1, Rock plants; 2, Marsh plants; 3, Plants that love shade; 4, Sylvestral plants; 5, Riparian plants; 6, Gregarious plants; and, finally, a miscellaneous race. Comparing our flora with that of other countries, Mr. Pettigrew showed the detrimental influence of cold upon the flora of any country. France boasted of 4,700 species, whilst the larger area of Norway and Sweden had only 1,857 species. Spitzbergen had 107 species; whilst we could number 1,832. He also grouped the flora according to the different parts of the world in which the same species may be found, suggesting the human agencies whereby their presence here may be explained, but finding a final solution in geology which proves that Britain was not originally in the splendid isolation she at present enjoys, but was a part of the European continent.

MANCHESTER HORTICULTURAL IMPROVEMENT.

February 23.—A meeting was held in the Albert Memorial Hall, Manchester, on the above date, when the prize essays, in a competition open to under gardeners within a 15 miles radius of Manchester, were read.

The winner of the 1st prize in the first division for gardeners over 22 years of age, was Seth Burgess, the Rookery Gardens, Pendleton, Manchester; and in the second division for gardeners under 22 years of age, Geo. Farmer, Manchester Botanical Gardens. It was decided that the annual summer picnic of the Society should take place at Hawkstone Park, Lord Hill's seat in Shropshire.

THE ROYAL GARDENERS' ORPHAN FUND.

February 24.—The usual monthly meeting of the Executive Committee took place at the Horticultural Club on the above date.

Mr. William Marshall was unanimously elected Chairman of the Committee for the year ensuing.

The following special donations were announced:—Mr. M. Todd, Maitland Street, Edinburgh, £33; Mr. H. J. Jones, Lewisham, £15 4*s*. 6*d*.; J. Colebrook, Esq., Lowndes Square, S.W., £10 10*s*.; W. Roupell, Esq., Brixton, £5 5*s*.; Leeds Paxton Society, £3 5*s*.; proceeds of concert organised by the Chislehurst Gardeners' Improvement Association, per Mr. J. Lyne, £17 10*s*.; Messrs. W. Thomson & Sons, Ltd., Clovenfords Box, £2 12*s*. 3*d*.; Messrs. J. Moss & Son, Kelvedon, Essex, £1 1*s*.; Mr. W. Howe, The Gardens, Park Hill House, Streatham, £1; Proprietors of Anderton's Hotel, Box, 10*s*.; and Mr. W. Whittaker, Bridgewater, 10*s*.

The credentials of the guardians of the newly-elected children on the Fund (in almost every case the mother) were examined and passed. This is a matter of great importance, and one to which the committee give the closest possible attention; and almost without exception, from the foundation of the Fund, this duty has been performed in a satisfactory manner.

CHESTER PAXTON.

February 25.—At the usual fortnightly meeting held at the Grosvenor Museum on the above date, Mr. Robert Newstead, F.E.S., delivered a lecture to the members, entitled, "Newly-Introduced Fruit and Coccid Pests, together with an account of the San José Scale."

As an introduction to the subject, the lecturer gave a *résumé* of the salient characters of insects generally, comparing them with the remarkable family of scale insects. A series of well-known species were then shown, which, for the aid of the horticulturist, were divided into three sections:—

(A.) Shield-bearing Coccids, in which the insects cover their bodies with a tough, leathery covering or shield, as in the "Mussel Scale," the circular scale of the Plum, the "San José Scale," &c.

(B.) Wax-bearing species, which protect their bodies with a felting of white wax, as in the "Mealy-bugs," &c.

(C.) Naked species, as in the common "brown scales" (Lecanium), and the Cushion-scale of the Vine (Pulvinaria), &c.

The lecturer pointed out that section A was most easily destroyed with insecticides, or even with a stiff brush, when in the larval or young and unprotected stages, and that it was very important the time of appearance of these larvæ should be noted, and remedial measures taken at the time of their appearance.

With section B it was much more difficult, inasmuch as all the stages of the insect were more or less protected, either by a mealy, powdery substance, or by cottony secretions of the same waxy substance; such insects, therefore, required more drastic treatment, and constant application of insecticides.

Section C were undoubtedly the easiest of all to keep in check with insecticides, from the fact the females were always naked and unprotected. But Mr. Newstead also pointed out the necessity for destroying the females before they arrived at the egg-laying stage, otherwise the work of destruction would be increased more than a thousand-fold, as many of the females were capable of producing 2000 young.

A full account of the San José scale was given, together with the recently-imported Japanese Cherry-scale, Diaspis Amygdali, D. Carnelli; on Conifers, Fiorinia kewensis, new to science, and several other interesting species.

The hon. secretary, Mr. G. P. Miln, proposed a very hearty vote of thanks to Mr. Newstead for his admirable lecture, which was accorded with acclamation.

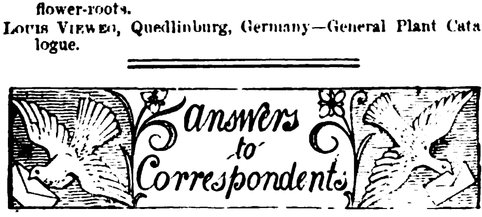
PRESENTATION.—Mr. W. Miller, who recently retired from the superintendence of Earl Craven's gardens and estate at Combe Abbey, has been presented by the workmen upon that estate with a silver tea-pot and pencil-case.

NOVELTIES.

Messrs. Sander offer for the first time Calla leucoxantha, a cross between C. Elliottiana and C. albo maculata, Ceropegia perforata, Cyperus fertilis, Evodia elegans, an elegant Araliad from New Guinea; Helianthus mollis, a hardy perennial; Leea Micholitzii, L. Roebriana, two noble tropical climbers; Macroscepis elliptica, Mikania Sanderi, Panax aureum, P. Balfouri, Passiflora pruinosa, Areca Ilsemanni, Caryota Rumphiana var. Alberti, Geonoma Pynaertiana, Kentia Kirsteniana, K. Sanderiana, Licuala Jeanenceyi, Linospadix Petrickiana, Livistona Woodfordi, Acalypha Godseffiana, Anthurium bogotense, Bowenia spectabilis serrulata, Caladium albanense, C. speciosum, C. venosum, Dracæna Cantleyi, D. Godseffiana, Eustrepius latifolius, Graptophyllum pictum, Polygonum lanigerum, Mapania pandanæfolia, Philodendron imperiale var. Laucheana. Many of these, though now for the first time offered in commerce, have been described or figured in these pages, and several of them have been exhibited at the Ghent Quinquennial or the Temple shows, so that their value has been adequately tested. Various hybrid Begonias and Carnations are also mentioned. When we add, in conclusion, that in this list are included Acalypha hispida (Sanderiana, hort.) and Watsonia iridifolia var. O'Brieni = W. Ardernei, hort., we shall have said enough to show that the importation of new plants, other than Orchids, has not entirely ceased, and that this list is one of the most remarkable that has ever come under our notice.

CATALOGUES RECEIVED.

Sander & Co., St. Albans, Herts—New Orchids and other Plants.
Millar, Bros., 20, Market Place, Hull—Seeds.
Wm. Clibran & Son, 10 and 12, Market Street, Manchester—Farm Seeds.
Kent & Brydon, Darlington—Farm Seeds.
E. H. Krelage & Son, Royal Bloemhof Nurseries, Haarlem, Holland—Begonias, Cannas, Dahlias, Gladiolus, Gloxinias, Lilies, &c.
Edw. Pynaert van Geert, Belgian Exotic Nurseries, Ghent (English agent, Mr. A. Outram)—Wholesale list of general nursery stock.
Wm. Cutbush & Son, Highgate Nurseries, London, N.—(1) Hardy, herbaceous, and bulbous plants; (2) Dahlias, Cannas, Begonias, &c.; (3) Roses and fruit-trees.
Rivoire & Sons, 16, Rue d'Algérie, Lyon, France—New varieties of Lobelias, Dahlias, Coleus, Begonias, &c.
J. C. Schmidt, Erfurt, Germany—Horticultural requisites.
Hugo Voigt, Leipzig, R., Nostiz Strasse—Flowering plants for furnishing cut blooms.
Luigi Canè, Casalecchio di Reno, Bologna, Italy—Seeds of hardy and greenhouse trees and shrubs, herbaceous perennials, &c.
Harrison & Sons, Leicester—Farm Seeds.
W. Goodliffe, Cambridge Nurseries, North Court Road, Worthing—Plants and bulbs.
S. Dobie & Son, Heathfield Gardens, Chester—Bulbs and flower-roots.
Louis Vieweg, Quedlinburg, Germany—General Plant Catalogue.



Answers to Correspondents

Basic Slag. (Thomas Slag, German Slag, and other terms): *C. B. Powell.* This substance is rich in phosphoric acid, and it may be used earlier than superphosphate, as it is more soluble. It may be used in conjunction with other artificials on Oats, land to be laid down to grass, meadow grass, Onions, Asparagus, all fruit trees, and Potatos. Of course, if in excess it is harmful.

Books: *R. C. D. Greenhouse and Stove Plants*, by T. Baines, published by John Murray, London.—*P. E.* John E. Sowerby's *British Wild Flowers*, with short descriptive notes and coloured illustrations, out of print, but to be met with in the old book shops. *British Flora*, and key, by Bentham and Hooker, furnished with wood-cuts, published by L. Reeve & Co., Henrietta Street, W.C.—Others next week.

Bow Bouquet: *W. C. H., Cape Town.* The only bouquet that tallies with your description is the feather-weight bouquet, which was recently reproduced in the *Gardeners' Chronicle.* The bouquet is composed of any light-weighing flowers, such as Carnations, Rose-buds, Lily of the Valley, Orange blossoms, Orchids, Violets, Gardenias, &c.

Cattleya: *W. R.* The disease is probably due to some fungus, the nature of which has not yet been determined. Isolate the plant; or, better still, burn it.

Earth: *H. P.* The worms enclosed feed on decaying vegetable matter, and do not, we believe, injure living plants.

Figs Falling from Pot and Planted-out Plants: *G. H.* Only the very small Figs—those of the size of marrow-fat peas—remain on a tree through the winter to any good purpose; and all others should be removed as soon as the leaves fall. You must be careful not to hasten growth by too much heat, top or bottom. The latter should not exceed at this date 76° to 78°, and you should be sure that root growth has taken place generally before the top heat is increased beyond 50°. The pot plants are likely to afford summer Figs, but those that were planted out and their roots disentangled and spread about in the soil, cannot be of any service this year; at the least, they will scarcely afford a crop of early Figs, and much forcing will do them more harm than good, although they may be pushed along fast in the summer so as to mature the wood in good time.

Gazania Seed: *S. W.* You could obtain it from Dammann & Co., nursery and seedsmen, Portici, near Naples. It is a useful plant in its several varieties, which are said to come true from seed; but, should they not do so, late summer cuttings, and old plants taken up and potted would furnish spring cuttings.

Grubs in the Soil: *H. Perrett.* The larvæ of some species of weevil, very injurious to plants by reason of their feeding on the roots. Turn over the soil and turn in the fowls; doing this repeatedly. They harbour just under the surface. If you have to use infested soil in pots, first bake it to destroy grubs and eggs.

Land near a Brickfield: *C. B.* It is not advisable to take land near a brickfield if ordinary nursery stock is to be grown, as the fumes from the clamps have an injurious effect on arboreal vegetation.

Maréchal Niel Rose: *B. & Sons.* There is no permanent cure of the gouty swelling at the point of union. Excessive root-feeding tends to make it worse. Try change of situation. If the excrescence splits, various fungi may enter. A stock which would grow as fast as this Rose is what is wanted, and we have not got that yet. Try slitting the bark of the stock; and work the Rose low down on the stocks so as to get the budded part beneath the soil. Do not plant a Rose-stock low in the soil unless the bud was put in low down. Maréchal Niel might do on its own roots under glass, but is too tender out of doors. It layers readily, so that own-rooted plants can be obtained in one season.

Mushrooms: *A. W. Le M.* We figured a bunch of Mushrooms in our issue for June 18, 1898, which numbered more than 100, and weighed 5 lb. 2 oz. So that your find is by no means unique, excepting that it grew on an outside bed in winter.

Names of Fruits: *J. C. W. & Sons.* Apple, Cornish Aromatic.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*J. T. B. P.* Dendrobium teretifolium, Queensland, yes! *R. A. R.*—*A. B.* 1, Cupressus Lawsoniana; 2, Thuya orientalis var.; 3, Abies Nordmanniana; 4, Pseudotsuga Douglasii; 5, perhaps Lonicera fragrantissima; 6, a seedling Hellebore.—*Subscriber.* Probably Saxifraga Stracheyi.—*J. J.* The white-veined leaf, Fittonia argyroneura; the other, Ruellia Portellæ.—*H. R., Cambridge.* Odontoglossum luteo-purpureum, and the best form of Odontoglossum nævium.—*G. W.* Cattleya Trianæi.—*R. T.* The Odontoglossum is a good form of O. × Andersonianum; the Cypripedium shows but little departure from some of the forms of C. × Crossianum.—*T. T., Nuneaton.* Oncidium tetrapetalum.—*G. E. K.* Iris fimbriata.—*W. W.* 1, Dendrobium × Ainsworthi; 2, Dendrobium Wardianum; 3, Cattleya Luddemanniana, commonly called C. speciosissima; 4, Dicksonia antarctica.—*J. B., Wilts.* 1, 2, and 3, all very fine forms of Dendrobium nobile; 1 has a peculiar tint of colour, but not so conspicuous as last year. Repeated 1, 2, and 3, varieties of Odontoglossum × Andersonianum. The Dendrobium Wardianum is the best form; the Dendrobium crassinode Barberianum, very fine; the Odontoglossum triumphans, a very handsome flower. When producing a many-flowered inflorescence it may not be so good. The little spray is Cœlogyne flaccida. Please number all in future.—*R. G. G., Plas Clough, Denbigh.* The twig sent as that of "a small evergreen hardy shrub" seems to be very near a species of Monardella, allied to M. nana; it is not known to have any economic uses, medicinal or otherwise.

Slitting the Bark of Trees: *W. B.* If you confine the operation to the outer bark, cutting with a sharp knife or other suitable instrument, the pressure of the bark is reduced, and a strong flow of sap takes place towards the slits in order to form a union of the parts. As a rule, a more active growth becomes noticeable in the stem or branches that are operated upon, and they increase in diameter, which is particularly useful in trees that are at a standstill, and as gardeners say, "hidebound." This often occurs in the first year after planting, owing to lack of roots and rootdisturbance. The operation is also useful when there is a marked disproportion between the size of the crown and the stem in restoring the proper balance. It may be carried out repeatedly without any injury resulting.

Soil with Iron in it: *S. S.* To prevent the hardening when dry, mix a good proportion of leaf-mould, charcoal dust, and bone-meal with it, and use mulches over the potted plants in hot weather. Do not make use of a pasture soil that is not well furnished with the roots of Grasses, &c., and do not use any which has not been in stack for twelve months.

The Post of Horticultural Lecturer: *Energy.* A candidate would most surely have to satisfy the sub-committee of a County Council having the appointment to make that he was thoroughly competent to impart instruction; and in order to do this he would probably require to be provided with suitable testimonials as to his ability and qualifications.

Vines: *J. G. F.* Probably a case of "Browning," often described in these columns.

Violets: *G. Brown, Hants.* We have never seen finer. You should oblige our readers with a note describing your methods of culture, kind of soil used, &c.

Women Gardeners: *W. B.* There are a few women employed in the glasshouses at Kew. Swanley Horticultural School has a good many: but, in regard to the other statements made in the cutting sent, we may say that they contain much exaggeration. Men are not quite ousted from the business, although women have been employed in market gardens for hundreds of years.

Communications Received.—E. P., Ghent.—A. C., Verviers.—A. H., Bermuda.—E. H. W.—D. R. W.—F. A. W., Vermont.—K. S., Berlin.—H. E., Florence.—E. R., Ghent.—Baron O., Antwerp.—V. L., Nancy.—L. C.—W. G. S., Leeds.—H. E., Rome.—D. T. F.—J. M.—W. G.—E. M.—F. W. B.—F. W. M.—W. W.—B. M.—H. W.—C. W. D.—W. C.—C. H.—W. B.—H. F. G.—G. M.—A. B. S.—K. McD.—J. & Co.—A. H.—T. E. H.—A. L. V.—A. C. F.—R. L. H.—F. D.—W. C.—J. O.—J. O'B.—F. W. B.—C. W. D.—Observer.

Specimens and Photographs Received with Thanks.—R. L. H.—Hibernia.—E. W. B.—V. Lemoine.—W. M. F.—W. N.—F. W. M.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libraries.*

(*For Markets and Weather, see p.* xiv.

THE
Gardeners' Chronicle

No. 637.—*SATURDAY, MARCH* 11, 1899.

THE EUCALYPTUS, THE SOIL, AND THE GRAFT.

THE information which has been recently published in these columns on the subject of the Eucalyptus, shows that the tree may be cultivated in this country even as far north as the county of Inverness. It is indisputable, however, that the risk is always great, except perhaps in certain favourable situations, not only on account of the climate, but also for other reasons, to which reference will presently be made. The Eucalyptus at Meadfoot Rock, Torquay, which is reported to be twenty years old, must, for instance, be growing under exceptionally favourable conditions, since it resisted the winter of 1894-95, when the genus was practically exterminated from the Island of Jersey. Many of the trees, moreover, had attained to a very large size, and seemed to be thoroughly acclimatised in the Island, where the average temperature is considerably higher, and the extremes of heat and cold considerably less, than in England. The question of temperature is, indeed, not the only one to be considered in the successful cultivation of the Eucalyptus, and it is probably on this account that the limit of cold endurance of the tree is found in Western Europe to vary within comparatively wide limits, as will be mentioned at the end of this article.

Some species are undoubtedly better adapted than others to certain soils and situations, and it should not be forgotten that in the Australian continent, which is the home of the Eucalyptus, different species thrive best under very different conditions. For instance, the Spotted-gum of New South Wales, E. maculata, is generally found on stony ridges; the White-gum, E. viminalis, attains to a great size in rich soil in mountain forests, but it thrives only moderately in poor soil; and the Bloodwood, E. corymbosa, flourishes better in the mountains than on the coast. Some varieties, again, are best adapted to the northern and warmer parts of Australia, and whilst some prefer swampy ground, others thrive best in sandy or calcareous soils.

So important, indeed, is the question of soil, that in the commercial cultivation of the Eucalyptus it is well recognised, as Professor Warren states in his work entitled *Australian Timbers*, that the strength and durability of the timber depend to a great extent upon the locality in which the trees are grown. Timber, for example, of the same name, and presenting the same general characteristics, differs widely in quality when it is grown under different conditions of temperature, geological formation of soil, and amount and distribution of rainfall; or when it is grown on mountain ridges, or in swampy, low-lying ground. The Blue-gum, for instance, from a particular district of Victoria (Corner Inlet), gives excellent results compared with the timber of the same species grown in other localities under less favourable conditions. Again, the timber grown in swampy, low-lying districts is found to possess less tenacity of fibre than the product of the same tree grown at higher elevations, and in more favourable geological formations; and the granite soils of Australia, it may be added, do not appear to produce any kind of good timber.

The Eucalyptus, moreover, is subject to a defect called gum-vein, which is caused by the extravasation of gum-resin in particular parts among the woody tissue, and where an apparent injury has been sustained; or in the concentric circles between successive layers of wood. If, therefore, the Eucalyptus is so affected by local conditions in its native habitat, how much should they not be considered when the tree is grown in regions where frost is an additional, and its greatest, danger. It may be mentioned in this connection, as Señor Sempere has stated in his Monograph on the Eucalyptus, that the cultivation of the tree has been very successful in Spain, because it finds there three climatic conditions which it requires, viz., "the proper temperature, the necessary humidity, and the suitable quality of the ambient air."

The opinion of M. Félix Sahut is also of great value in this connection, inasmuch as he is one of the best authorities as regards the acclimatisation of the tree in Europe. He states that while the minimum winter temperature must first be considered, the relative atmospheric humidity and other local circumstances must not be overlooked, as is indeed proved by the following circumstance. Fifty-three species of Eucalyptus were growing near Montpellier in the winter of 1864, when the temperature fell to 10·4° F., which completely destroyed twenty-eight species, nine others being more or less injured, whilst sixteen completely resisted the cold. Moreover, other experiments, made under different local conditions, showed that some of these species, in certain cases, withstood lower temperatures, while under other conditions they suffered more when the cold was not so severe. It has also been found that several of the species which most successfully resist the winters in the south of France are unable to exist in the soil of Provence. M. Sahut gives a very remarkable account of an Eucalyptus which, planted at Lattes in 1864, resisted 32° F. of frost during the memorable winter of 1870-71, nor did the tree suffer in any way, and even its leaves remained intact. It had been raised from a seedling among seed of E. Risdoni, and its identity was never traced. It grew to a height of nearly 40 feet during its comparatively short life, for at the age of twenty years it gradually began to show signs of weakness and ultimately it died. This tree which had been provisionally named E. lattensis by M. Naudin, indicated a species possessing cold-resisting qualities, but as it never blossomed, M. Sahut's foresight led him to graft it on an allied species with a view to its cultivation as an ornamental tree in more northern parts of France. Two methods were employed: one, the cleft graft, with moderate results only; and the graft by approach, or inarching, with much greater success. The stock being more susceptible to cold than the scion, the operation was purposely made as near as possible to the root. The union of the plants was practically perfect, and five or six dozen plants developed vigorously and with great promise. Some of them grew to a height of 6 feet during the first year, but during the next season they all began to fail, and at the end of the third year not one was alive.

The operation of budding was not tried by M. Sahut in these experiments, because he did not think it would succeed, and it is interesting to note that this method has been adopted with good results elsewhere. The *Revue Horticole* published in 1893 an account of work of this character conducted in Palestine by M. Justin Dugourd, who budded E. Globulus on E. resinifera. The former variety is one with spreading roots, and is a less resistant to the influence of the wind, &c., than the latter, which was used as the stock, because it grows into a strong tree. It appears to be necessary for the complete success of this operation to support the scion in some suitable manner, so that the sap may the more readily reach it. As the stock increases in growth, it is also desirable to remove any shoots which it may produce, unless the operation is unsuccessful, when the subject may then be allowed to grow. It should be mentioned that M. Sahut is of opinion that the E. resinifera in question is the popular but incorrect name given by many French gardeners to a variety of E. rostrata, which is very generally found in the south of France, where it thrives best in the calcareous soils, and is more resistant to drought than many other kinds.

Considered in the light of past results in connection with other plants, M. Sahut is of opinion that the graft may be the means of greatly extending the cultivation of the Eucalyptus in Europe. He himself has proved that certain rare species of Pinus will not grow in a particular limestone district, except when grafted on P. halepensis, or P. nigra, or P. pinea. To quote M. Sahut verbally from his paper on the subject, in the *Annales de la Société d'Horticulture de l'Herault*, the problem is as follows: "Given one or several species of Eucalyptus which develop vigorously in a certain soil, it is required to employ them as stocks whereon to graft species which will not themselves thrive therein." And he illustrates his proposition by the following evidence: Of the 130 species of Eucalyptus experimentally grown at Lattes, the larger proportion were killed by the cold; others succumbed to the heat; while yet others, after languishing for several years, ultimately perished, not on account of the cold, but because the nature of the soil was unsuitable, and different from the mountain regions of Australia, whence the trees originally came.

As regards the limit of cold endurance of the Eucalyptus, it may be added that, with a view to the cultivation of the tree in America, the United States Government made an inquiry on the subject through its consular service in the year 1894, and the reports received from various parts of the world are of very great interest. The officer at Marseilles reported that, generally speaking, 'some species which have been thoroughly acclimatised in southern Europe are capable of resisting a temperature as low as 8·6° F.; but successful cultivation of desirable sorts cannot be hoped for in localities where the winter maximum of cold exceeds 21·2° to 17·6° F.

The report from Rome stated that the Eucalyptus is killed by the cold in Italy when the thermometer marks 12° F. below freezing. The consul at Madrid, writing in March, 1894, stated that E. Globulus and other allied species had resisted the climate of Barcelona and Madrid, where the temperature is frequently as low as 6° or 7° C. (20·7° F.), without any diminution in vigour or vitality.

The consul at Zanzibar reported that an attempt had been made to cultivate the tree in his district, but without success, owing to want of care or to the unsuitability of the soil.

Further evidence could be given to show that

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the experimental cultivation of Gum-trees must be regulated by a consideration of various factors other than the temperature of the district. It may be added, for instance, that in the Punjab, planting in groves gives a better chance of success than when the tree is planted singly along the roadsides, and that its general failure in that district is mainly attributable to three causes, viz., failure of the rains; injury to the young stems by sunburn; but principally to the white ants, which destroy the roots.

It may be interesting in conclusion, to give the following information from a comparatively recent Spanish work on horticulture.* E. Globulus is the favourite variety in Spain, where it thrives in humid soil, but not in humid air; E. resinifera is found to resist the wind remarkably well, and to accommodate itself to every soil; E. urnigera is suited to the mountainous districts and to low temperatures; E. Gunni and E. coriacea are indifferent to cold; E. marginata is rather sensitive; E. amygdalina grows best in sandy soil, E. fissilis prospers in poor soil, E. odorata thrives in dry soil.

In Bois' *Dictionnaire d'Horticulture*, the following species are mentioned as extensively grown in Provence, and to be as rustic as E. Globulus:—E. calophylla, E. cornuta, E. gomphocephala, E. robusta; and E. Gunni, E. polyanthema, and E. viminalis, which are also specially named as among the most hardy of the species.

A large number of species have been experimentally planted in the Landes of the south-west of France with unsuccessful results; and in the region of Paris the tree is taken to the temperate-house as early as the month of November. Hence, M. Bouquet de la Grye defines the northern limit of the Eucalyptus in Europe to be the same as that of the Orange—a statement with which many growers do not agree, and which is not unlikely to be disproved by cultivation of the tree under the selective conditions to which allusion has here been made. *Scion.*

ORCHID NOTES AND GLEANINGS.

EPIDENDRUM UMBELLATUM.

M. Cogniaux sends us from Verviers the following communication on this subject: With respect to the Epidendrum umbellatum mentioned in the *Gardeners' Chronicle* of February 18, there are two remarks I wish to make: first, by reason of priority, E. umbellatum, Swartz (1788), should be named E. difforme, Jacq. (1760); second, the plant figured in the number of the *Gardeners' Chronicle* mentioned above, p. 98, fig. 39, is not E. difforme, Jacq. (E. umbellatum, Sw.), but E. latilabre, Ldl. Although these two species are very variable, it is always easy to distinguish them: E. difforme has usually oblong, sometimes nearly linear leaves; many-flowered umbels, the petals narrowly linear (1 to 2 mm. wide) and not spatulate; the lip nearly flat, half as wide again as it is long. E. latilabre has leaves often oblong-oval, the upper ones sometimes sub-orbicular, umbels with two to four flowers, the petals linear-spatulate (2 to 4 mm. wide); the lip has widely reflexed edges, and is sometimes four times as wide as it is long. According to some hundred of herbarium specimens which I have studied, these are the maximum measures of the lip: in E. difforme 1 to 2 cm. long and 1½ to 3 cm. across; in E. latilabre, 1 to 2 cm. long, and 3½ to 5 cm. across.

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES.

The last number of this useful little publication, No. 22, dated October, 1898, contains the following plates:—

Angræcum superbum, Thouars.

Cirrhopetalum guttulatum, Hooker, f.

Cirrhopetalum ornatissimum, Rchb. f., in *Gard. Chron.*, 1882, xviii, p. 424.

Cœlogyne speciosa, Blume, C. salmonicolor, Rchb. f., in *Gard. Chron.*, 1883, xx, p. 328.

Cypripedium aureum ×, a hybrid out of C. Spicerianum by C. nitens.

Cypripedium Calypso ×, out of C. Spicerianum by Boxalli.

Cypripedium T. W. Bond, out of C. Swanianum × by C. hirsutissimum. C. Swanianum is itself a hybrid between C. Dayanum and C. barbatum.

Masdevallia Harryana, Rchb. f., fig. in *Gard. Chron.* 1871, p. 1421.

Odontoglossum Rolfeæ ×, a hybrid raised by M. Vuylsteke from Pescatorei by Harryanum.

Odontoglossum Schlieperianum var. xanthina.

Oncidium Jonesianum, Rchb. f., in *Gard. Chron.*, 1883, xx, p. 781.

Sophronitis cernua, Lindley.

Stauropsis lissochiloides, Bentham.

"LINDENIA."

A very remarkable series of fine varieties is figured in the last number of this publication:—

Cattleya Mendeli var. Princess Clementine, t. 647.—The flowers are white, with the exception of the lip, which has a yellow blotch at the base, and a small crimson one on the anterior lobe just before it divides into two lobes.

Cypripedium Wiertzianum × L. Lind, t. 644.—A hybrid from C. Lawrenceanum, by C. Rothschildianum.

Dendrobium nobile, Lindl., t. 645-646.—A double plate devoted to the illustration of numerous forms of this variable but ever-welcome species, viz., anomalum, luteum, majus, albo-luteum, splendidum, excellens. Some thirty-two hybrids from this species are also enumerated.

Habenaria Susannæ, R. Br., t. 642.—A long-known and widely-distributed Orchid, with large white flowers, 7 cent. across; the outer segments are ovate, the petals linear, the lip three-lobed, with a long spur twice or thrice the length of the flower; the lateral lobes deeply laciniate, the intermediate lobe linear.

Lælia præstans var. Luciani, t. 643.—A highly-coloured variety, the blotch on the front of the lip being especially rich in colour.

Miltonia vexillaria, Benth., var. Memoria Lindeni, t. 648.—Remarkable for the intensity of its rosy-lilac coloration; the lip has at the base a yellow blotch, striped with rosy-lilac.

Odontoglossum crispum var. La Merveille, t. 641.—A splendid variety, introduced by M. Lucien Linden, having broad, undulate acute white segments, marked by one or more large purplish-brown blotches. The lip, which is narrow and contracted, so as to separate the anterior lobe, is similarly marked.

PINUS MONTEZUMÆ.

Our illustration (fig. 53), taken from specimens obligingly forwarded to us by J. Rashleigh, Esq., Menabilly, shows the foliage, the male and female catkins, together with other details of Pinus Montezumæ. This is one of the most variable of Mexican Pines, but all the varieties are probably tender in this country, unless in sheltered situations in the south and west. The tree grown by Mr. Rashleigh is now about 20 feet high, and as many feet in diameter. It bore female cones for two years, and last year it had five or six fine cones on it. Mr. Rashleigh raised several seedlings, but all but one damped off, the survivor now looks strong and healthy.

"Very seldom in my experience," says Mr. Rashleigh, "are fertile seeds produced of these Mexican Pines. I have had a sackful of cones of P. patula, but no perfect seed. I have about twenty trees of Pinus Montezumæ, each about 7 to 8 feet high, from seed sent to me from Mexico by our consul there, and besides these, I have given away as many more. The two varieties of P. Montezumæ which are growing here, are very distinct in the colour and form of the foliage. The variety with rigid, upright, glaucous foliage, has been called P. Montezumæ vera. The variety with drooping foliage of a bright green colour, is perhaps the variety Lindleyana.

"Both these varieties have, with me, borne cones, which were similarly curved in shape, but different in the colour and form of the scales. My two original largest plants are about the same size and dimensions. That which I had from Lawson under the name P. oocarpa is P. Montezumæ Lindleyana, and the living seedling (home-grown) is from this plant, as also are all those which I procured from the consul at Mexico.

"I had several conversations with the late Dr. Lindley about this variety, and I remember my indignation at his refusal to believe that I had succeeded in rearing a cutting of P. Montezumæ into a living plant. He said it was impossible. But I did succeed in doing this, and I reared it from a young growth which had sprung from a broken branch, and by cutting off a small portion of the old wood. It was planted in silver-sand with a bell-glass over it, the soil being kept constantly moist, so that the bell-glass was constantly filled with moist vapour, and was never removed for three or four months."

We have on former occasions published illustrations of the cones, March 3, 1894, p. 273, fig. 29; see also October 25, 1890, p. 466.

STAMPING OUT POTATO DISEASE.

The Potato crops of the last few years having been so largely affected by the Potato disease, perhaps a few facts as to experiments I have made, and the success attending them, with regard to raising Potatos free from this pest, may be acceptable to your readers, and I would therefore ask your indulgence in granting me a little space to set forth the same.

Having come to the conclusion that this evil could be disposed of, if only sufficient patience and perseverance were given to it, I determined to try, and some seven years ago commenced experiments, the result of which can be judged from the fact that from a few seedlings I then raised I have now a stock of over 300 distinct varieties. I do not grow from seed Potatos, but from the seed found in the Potato-apple, and my belief that by so doing I could get *bonâ fide* disease-resisting Potatos has been fully justified, for while other crops have been largely affected by the disease during the past season, my stock has been and now is entirely free from it, and the Potatos are perfect in every shape and form. My system, as can be seen at once, entails a great amount of labour, and also expense, but nevertheless I am quite satisfied with the result, for not only have I a splendid stock of seedlings, but I have also increased my knowledge and proved my belief to be correct, that this is a sure way of eradicating this pest, and once more giving a sure supply of this important edible. About 100 varieties of my seedlings have been named, and one, Dr. Kitchin, has been tried by several local gentlemen with every success, testimonials of a very encouraging nature having been received by me to this effect. Not only is this satisfactory, but I have also received great encouragement by having three certificates awarded to my seedling Potatos, viz., two at the Winchester Gardeners' Mutual Improvement Association Exhibition, held in the College grounds, Winchester, and one at the Winchester Chrysanthemum Society's Exhibition, held in the Guildhall, while many gentlemen of note have taken up the matter with much fervour, and on several occasions favourable notices of my efforts have been published in the local press. Several influential members of the Winchester Chrysanthemum Society named for me the following varieties at their last show in November—Lord Kitchener, Admiral Sampson, Alfred Bowker (ex-mayor), Alice Bowker (ex-mayoress), and W. H. Myers, M.P. These are splendid varieties, not to be found in cultivation. The Potato, Admiral Sampson, professional gardeners acknowledge they have never seen surpassed. The Alfred Bowkers are perfect models. These facts need no further comments from me, but I may point out I have for cultivation this season ten tons of seedling Potatos.

I trust these facts will be acceptable, and that I have said enough to show my endeavours are meeting with success, and that my experiments are satisfactory. *Francis Dibbens, 22, Jewry Street, Winchester.*

[Our correspondent has carried out in his own way what Messrs. Fenn, A. and R. Dean, Findlay, Messrs. Sutton, and many other raisers of new Potatos have been trying to do for thirty years past,

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* *Novisima Guia del Hortelano, Jardinero y Arbolista.*

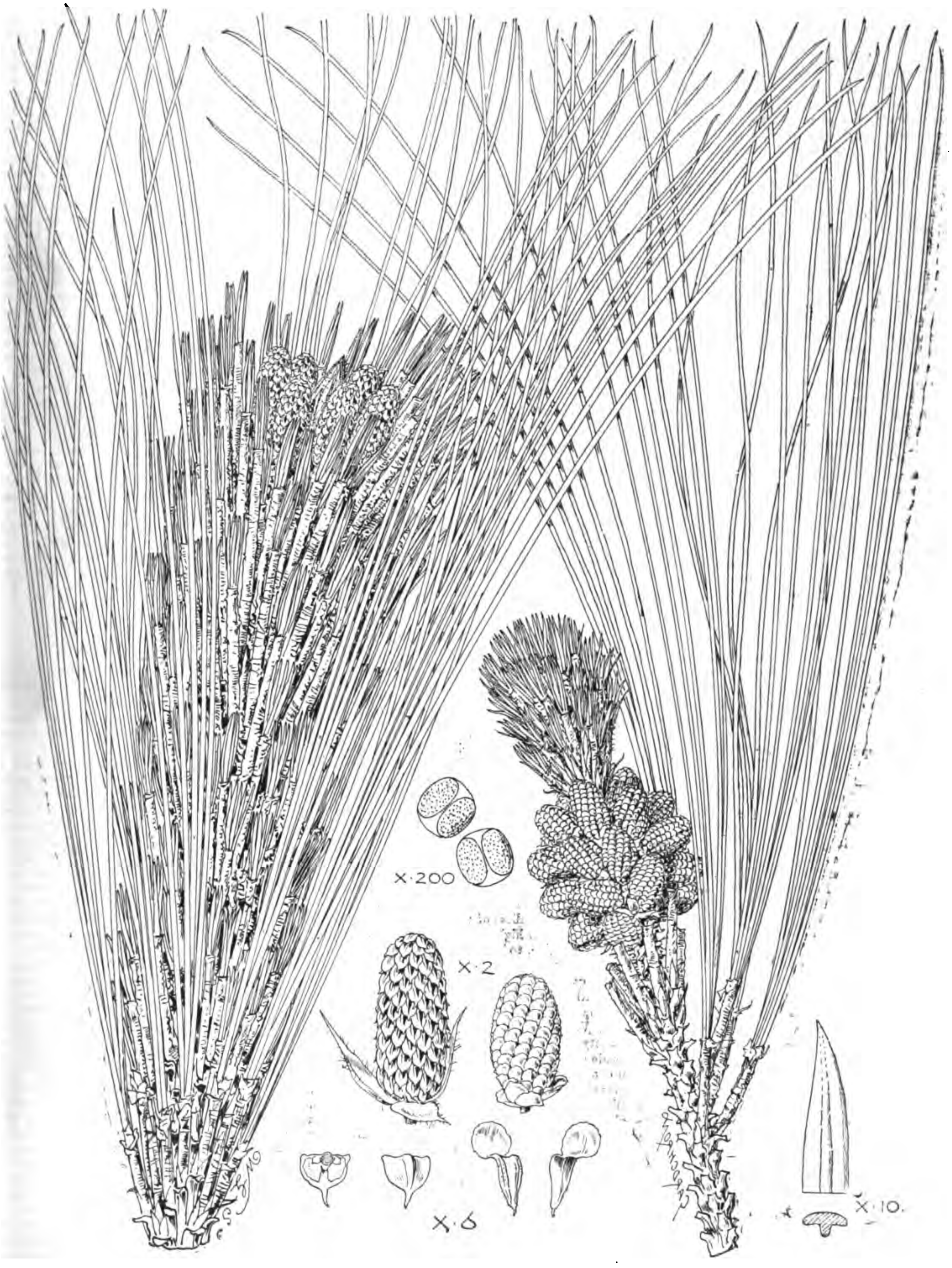

FIG. 53.—PINUS MONTEZUMÆ, SHOWING MALE AND FEMALE FLOWERS, POLLEN GRAINS, ETC.

namely, to introduce seedling varieties endowed with a constitution more or less proof against the Potato murrain. If his success should prove greater than theirs, a great stride will have been made in the direction of preserving an important article of daily consumption from loss. For good or evil, the Potato has come to stay, for no other equally valuable tuber, bulb, or root, suitable for field or garden cultivation, is known to us; and if disease-resisting varieties can be raised, we, in these islands, with their restricted cultivable area, ought certainly to possess them. Ed.]

NOTES FROM A SCOTTISH MANSE.

(Continued from p. 100.)

When last I wrote to the *Gardeners' Chronicle*, Nature was still enjoying her period of repose. Nevertheless, even then, in what may be termed the bulbous world, there was activity of a very important character going on underground. The process of root-formation, so essential for the subsequent upward growth of the plant and the development of the flowers, was silently being transacted. And the result of this energy is already sufficiently visible above the ever-gladdening surface of the ground. Bright and radiant forms, which the venerative nature cannot behold without emotion, are springing into life. Nothing is more touching to the lover of Nature than this annual re-awakening from the grave of winter, of the new-old flowers. They are those which charmed us with their beauty in other years; the same, yet not the same. And thus, in the beautiful language of Longfellow, "with child-like, credulous affection, we behold their tender buds expand." They seem to speak to our hearts with an eloquence peculiarly their own.

The earliest of all flowers, the graceful, drooping Snowdrops, are perhaps of all the floral treasures of the gardens and woodlands the dearest to our thoughts, for they come to us with the impressiveness of a veritable revelation; however, unobtrusive to our vision they may appear, they have flowered from an art our utmost efforts fail to find. We may comprehend the culture of nobler flowers; we may generate new and more elaborate forms, by hybridisation; but the secret of their origin, of their primal creation, eludes our utmost intellectual powers.

The Snowdrop is more beautiful than usual this year. At present it is the greatest ornament of the woodland enclosures which environ this manse, while around Logan House the fields look as if they were covered with a shower of snow. Here the purity of this earliest and best loved of all spring flowers, is greatly intensified by the intermingling golden hues of the earlier Crocuses, which, when thus planted at intervals among Snowdrops, are highly picturesque. In similar situations the deep blue flowers of Scilla sibirica (which by reason of its capability of producing rich contrasts should be universally cultivated) are also finely artistic in effect. Such pictures as these are not sufficiently studied by amateur or even professional horticulturists, many of whom might learn from Nature and especially from her arrangement of the woodland flowers, valuable lessons too frequently ignored. Nature is profuse, and often prodigal, in her floral affluence; yet we never find that of one colour she gives us too much. She has always a massive green environment for her myriads of glowing flowers. We sometimes exhibit our fairest blooms without foliage; Nature rarely does this. We did not learn from her majestic volume our meretricious arts.

I sometimes think there is too much glare, not only in our exhibitions, but in our modern gardens; too much of floral splendour, too little of soothing and sheltering umbrageousness. I am sure that the late Dr. Nathaniel Paterson, the eminent author of *The Manse Garden*, the first book on gardening I ever perused, would have agreed with me in this. He had the great privilege of being an intimate friend of Sir Walter Scott, of whom he was a near neighbour, when he (Dr. Paterson) was minister of Galashiels. The great novelist often consulted the Rev. Dr. regarding the trees he planted around Abbotsford, on the banks of the silvery Tweed. A gifted daughter of Dr. Paterson, wife of the Rev. James Cavan, resided for forty years in this sequestered yet beautiful parish—in Kirkmaiden Free Church Manse. She was a great cultivator of climbing flowers, especially such forms as Eccremocarpus scaber, Clematis flammula, and C. montana, which I trust her successor may cherish, with equally patient and loving care. The climber last mentioned is well worth preserving for its fragrance alone. I am much disposed to sound the praises of a plant much less obtrusive, of microscopic loveliness, which covers in spring and early summer the walls of my garden with its exquisite, miniature flowers; which, lilac and white in colour and profusely produced, have throughout the entire long season of blossoming, a most fascinating effect. At present it is only beginning to grow, but ere this tribute to its gentle beauty has been published, its tender flowers will have appeared; Linaria Cymballaria is its classical name. When preparing to seed, it grows, by some wise instinct, into the crevices of the walls, where it meditates only rapid floral production, it grows outwards to the light. Of late it has acquired two interesting companions, whose germinating seed has probably been blown by the winds, or carried by the birds from the neighbouring glen, viz., the pink-coloured Campion, and Geranium Robertianum. These climb gracefully upwards till they reach the Linaria; the Periwinkle, less ambitious, flowers at its feet. *David R. Williamson, Kirkmaiden Manse, Wigtonshire, N.B.*

SPONTANEOUS HYBRIDS OF HARDY PLANTS.

(Continued from p. 132.)

The readiness of the members of the large genus Verbascum to hybridise with one another is well known. E. Boissier describes about 120 oriental species in his *Flora Orientalis*, of which 90 per cent. are biennials (though he makes the mistake of calling V. nigrum biennial, whilst it is really a long-lived perennial). He warns us that he takes no notice of the hybrids. In Godron's *Flora of France*, only fourteen species are enumerated, and if we join V. nigrum and V. Chaixi into one species, this is the only one perennial; but eighteen wild hybrids, all of them biennial, are also described. Godron also states the fact, to which I have never been able to find an exception, that hybrids of Verbascum are entirely sterile. As a rule, the species produce seed in such abundance that while its production proves a true species, its absence affords a strong presumption of the plant being a hybrid; and chiefly for this reason I have always considered the tallest of perennial Mulleins, which grows 6 or 7 feet high, and is named V. Wierzbickii, syn. V. vernale, to be a hybrid.

About seven species of Verbascum are grown in Edge garden. I have had more, but not permanently established. Besides the tall, doubtful kind mentioned above, only two species are perennial, V. nigrum, of which I have also the white variety in plenty, and V. phœniceum, of every shade between dark purple and white; this comes up abundantly all over the garden, including gravel-walks. The biennial kinds are V. Lychnitis, Blattaria, including the white form, phlomoides, olympicum, and I may add that Thapsus keeps re-appearing, in spite of weeding out. All these show hybrids with one another, so that I can count more hybrid forms than species. From a gardener's point of view, by far the best hybrids are those between V. nigrum and V. phœniceum. I think the former is generally the seed-parent, from the places in which they appear. The commonest, but not the best, colour is some shade of copper, such as one would expect from a mixture of purple and yellow. Others are pink, or pale purple, or nearly white. They all throw up a succession of dense flower-stalks, which it is better to cut down when they begin to be shabby, to make room for more. They are only perpetuated by root-cuttings. I have had perennial hybrids evidently between V. nigrum and either V. olympicum or V. phlomoides, showing that a hybrid of a biennial is sometimes perennial. The presence of V. nigrum was obvious in the purple wool of the stamens, whilst the size of the flower and the texture of the leaves bespoke the larger biennial. Sometimes a hybrid between V. phœniceum and phlomoides has copper-coloured flowers. Some of the prettiest, whilst they last, are from Lychnitis, and I still have a perennial which I believe to be between that species and the white form of V. nigrum. V. Blattaria often takes the colour of V. phœniceum, differing little in other respects from its own type; but I have never known one of these to prove perennial.

Of seven or eight species of herbaceous hardy Spiræa grown at Edge, hardly one ever shows a spontaneous seedling except S. Aruncus, from which abundance of them come; but nearly all prove to be green-flowered, owing, I believe, to the damp soil. One other, S. camtschatica (so spelt in *Index Kewensis*), is peculiar. Every year since it has been in my garden two or three seedlings have appeared near it; not one of these has proved true to type: they are little more than half the height—4 feet instead of 8, and the flowers are pale pink instead of dull white; the panicle is looser, and longer. They are hybrids either of S. palmata or S. venusta, both of which grow near, or of a plant itself said to be a hybrid between S. palmata and S. Ulmaria, and called S. palmata var. elegans, which grows nearer still. I have distributed these seedlings, which were certainly less cumbrous than their gigantic parent, to several gardens. This is the only instance I have seen in which the seedlings produced from a typical species are all hybrids. *C. Wolley Dod, Edge Hall, Malpas.*

(To be continued.)

FERN HYBRIDS.

The presumed cross between our native Polypody (P. v. grandiceps) and the exotic P. nigrescens (figured in the issue of November 19, pp. 362 and 363), though not presenting such absolutely conclusive evidence of the cross as Mr. Schneider's previous success in P. Schneideri (P. v. elegantissima × P. glaucum), certainly arose from a prothallus which had intentionally been grown in juxtaposition with the other crested variety of a species with the intent that they should cross, and equally certainly the immense bunchy crests developed from the normally pinnate P. nigrescens is precisely what we might expect from the cross. The writer is, therefore, strongly inclined to impute the sport to a cross, and not to regard it as a purely independent variation. Mere cristation, however, has arisen spontaneously in so many species, that a simple cross of this cristate character is always open to doubt, and to establish the fact of a cross, other characteristics must be plainly transmitted, in which event the evidence becomes enormously strengthened. In P. Schneideri we have a model example of this class, the P. vulgare parent being not only divided in a peculiarly abnormal fashion for the species, but it is also erratically inconstant since not only do fronds of three types appear, viz., normal, bipinnate, and some of very fine cutting, but all these three characters may appear in one frond, some divisions being plain, and others redivided in two fashions. This variety, too, has only been found once, and no parallel to it is known to exist in any other species of Polypodium. Hence, when the spores of this are sown, or its prothalli mixed with those of a plain bipinnate form, like P. glaucum, which differs also from the other extremely in size, and we obtain a huge Fern fully the size of P. glaucum, but with fronds varied precisely like those of the abnormal P. vulgare, inconstancy and all, we cannot doubt that the characteristics of both parents have been intermingled, an independent sport being out of the question. In order, therefore, to eliminate doubt in cases of this kind, it is highly desirable, assuming the cross intended to be between a variety of one species and the normal form of another, that the varietal parent should have some special peculiarity beyond that greater or less ramification of the rachis constituting cresting, and which, as we know, is liable to originate, *per se*, in any species.

The greater liability of our native species to sport as compared with exotic species, as illustrated by the greater number of wild fronds, coupled with the demonstrated possibility of crossing with by no means closely-allied species of the same genera, opens up a wide field of operations, the first fruits of which we see amply illustrated in P. Schneideri, and fairly in P. nigrescens var. grandiceps. In view of Mr. E. J. Lowe's undoubted hybrid between Ceterach officinarum (Asp. Ceterach) and Scolopendrium vulgare, a cross evidenced by scaleless Ceterach fronds becoming confluent at their tips and bearing the dual fructification of Scolopendrium, we have before us the possibility of introducing variety into the peculiarly constant family of the Asplenia. In Asplenium nidus avis we have the relationship accentuated by similarity of form, and recently by an imported find of a form which is broadly pinnatifid, with crested tips to the side divisions, very much on the lines of S. v. laceratum. Asplenium nidus avis is such a grand Fern, that, in the opinion of many, any varietal introduction would spoil it; but we beg to differ from this view. Nature has a knack of harmonising her combinations; and we venture to assert that, if some fortunate hybridiser succeeded in crossing A. n. avis with one of our finest fertile forms of S. crispum, and got a thoroughbred, deeply frilled A. nidus avis as the result, there would be no lack of appreciation of his prize; neither would there be of a finely-crested form, or a fimbriated one, or indeed of a score of others of the right sort. "The right sort." "Aye! indeed, there's the rub!" There is no profit in crossing for crossing's sake, and filling the world with mongrels. Now that we have such a coterie of high-class symmetrical varieties, we can afford to ignore the imperfect ones. Recurring to the Polypodium genus, the name of the exotics is legion, many of which could doubtless be induced to follow the example of P. glaucum, and mate to mutual advantage, not only with P. v. elegantissimum cristatum and grandiceps, but also with the finely-cut form of P. v. pulcherrimum, and the long, slender type of P. v. bifido-cristatum. Unfortunately, in this species the true plumosums, P. v. cambricum, P. v. plumosum Haduni, P. v. Prestoni, and the like, are absolutely barren, and hence precluded from union; the aforesaid P. v. pulcherrimum, however, is a fertile form on similar lines to them, and P. v. semilacerum and omnilacerum are varieties which need precisely a robust-growing mate to bring out their too often latent excellence to perfection. Our little Asplenium Trichomanes, in its crested form, could, doubtless, despite its comparative smallness, affect beneficially some of its large exotic relatives. The Cyrtomiums are near relatives of our Lastreas, and could well afford to contribute their boldness of pinna to some of our tasselled forms of that ilk, or *vice versâ*. The exotic Osmundas might be crossed with O. r. cristata; and last, but not least, Polystichum setosum would be none the worse for a dash of not one but many of our lovely P. angulares. This is a field in itself, to say nothing of other exotic Polystichums, each species of which might afford charming combinations under the influence of our native varieties.

Finally, a word as to sowing: Mr. Schneider, we understand, sows the species apart, and subsequently pricks out small patches of prothalli of the same stage of development, and inserts these side by side prior to the period of fertilisation. This is done because exotic spores requiring warmth, develop into prothalli much more rapidly than do our native spores under cooler treatment, hence a simultaneous sowing of both together would result in self-fertilisation of the exotic batch before the others were mature. As, however, our native species do not object to some warmth in their prothallic state, it might be equally or more efficacious to sow our native spores first and not too thickly; let them grow on to a certain extent, and then sow the exotics broadcast among them, giving just sufficient warmth to start them, and bring them on both together to the crossing stage. Arrived at this we would immerse the pan in warm water until the water just flooded the prothalli, letting them stand thus for an hour or so, to permit of a general diffusion of the escaping antherozoids. Given then any affinity at all, it is clear the chances of cross-fertilisation will be enormously multiplied as compared with that of simply juxtaposed patches of prothalli, only the outermost of which are in contact with their possible mates. *D.*

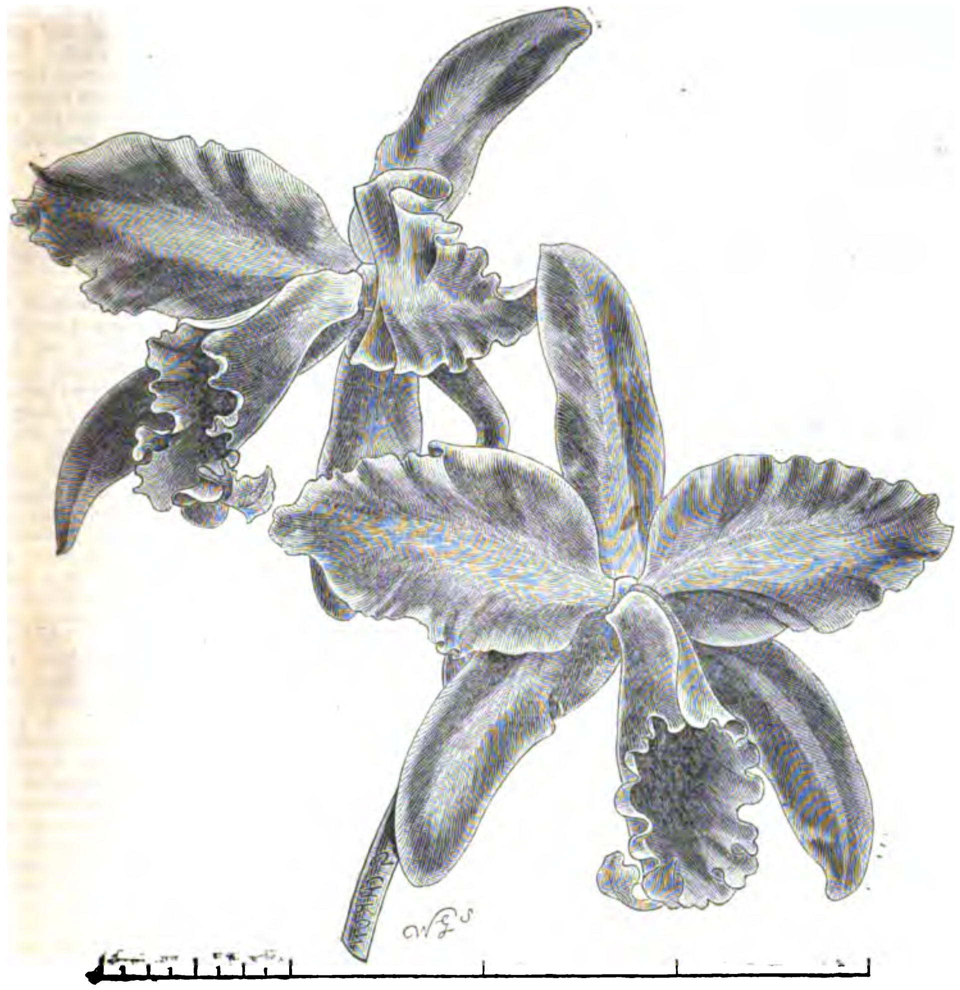

Fig. 54.—LÆLIO-CATTLEYA × ERNESTI, "PRINCESS OLGA:" COLOUR OF THE FLOWERS, RICH YELLOW.

LÆLIO-CATTLEYA × ERNESTI,

"PRINCESS OLGA."

Our illustration (fig. 54) represents one of the prettiest of garden hybrid Orchids. It was produced by M. Chas. Maron, of Brunoy, Seine-et-Oise, France, and shown for the first time at the Royal Horticultural Society, Feb. 28 last, when a First-class Certificate was unanimously awarded by the Orchid Committee. The plant is all the more interesting as the seed-bearer was the somewhat despised Cattleya Percivaliana, crossed with the clear yellow-coloured Lælia flava, whose colour wholly supplants the flowers of the rose-coloured female parent, in a similar manner that yellow has been known to do in hybridising other plants. The habit of L.-C. × Ernesti is like that of Lælia flava in a great measure. The flowers bright chrome-yellow, with an orange base to the lip, and red-brown. The plant, which bore two spikes of three flowers each, passed into the collection of Norman C. Cookson, Esq., Oakwood, Wylam.

AMERICAN NOTES.

BEGONIA GLOIRE DE LORRAINE IN THE UNITED STATES, AMERICA.

This winter-flowering Begonia, to which frequent reference has been made in your columns, is, you may be interested to know, having a great "boom" at present in America. Although the plant has been in the hands of a few growers for the past two or three years, it was comparatively unknown until last fall. One or two wide-awake persons, notably R. & J. Furgutad & Co., and Mr. William Edgar, of Boston, knowing the value of it commercially, made considerable importations of it from England, and worked up a large stock of it. Mr. Edgar staged a fine table of it at the Chrysanthemum exhibition of the Massachusetts Horticultural Society in Boston last November, when it was the centre of attraction for all visitors. Since that time there has been a great call for it, both from the trade and from private growers; and few persons over here owning a greenhouse are now without it. The florist stores in Boston sold large quantities of plants during Christmas week at from 5 to 15 dollars each; in fact, it was more in demand than any other flowering plant. The plant is figured and extensively advertised in the many leading seed catalogues now being sent out, and before the end of the present year it will probably be in the hands of nearly all flower-lovers. We find that Gloire de Lorraine, while more difficult of propagation than most of the other Begonias, roots quite freely from soft-wood cuttings or from leaf-sections. It seems to succeed well in an intermediate-house temperature, and stands a fair amount of sunshine; while a rich compost of half loam and well-rotted manure, with a good dash of sand and plenty of liquid-manure when the flowers show, give the best results. Of course this, like all other soft-wooded plants, succeeds in stronger compost, and stands more generous feeding than in England, owing to our more exhausting climate.

ENGLISH TOMATOS IN AMERICA.

Some of the leading English Tomatos are at last being recognised as standard varieties for forcing purposes in the States. For years growers have been relying more or less on such American varieties as Stone, Perfection, Lorillard, May's Favourite, &c., which, while admirable as outdoor kinds, are very unsatisfactory setters under glass. We have always found English kinds far more trustworthy for forcing, and it is pleasant to note that at last the merits of the varieties used by our transcontinental cousins are getting proper recognition. The best varieties here are Sutton's Best-of-All, Frogmore Prolific, and Eclipse. On plants of Best-of-All and Eclipse, grown to three stems in 10 and 12-inch pots, we had last winter from sixty to eighty-five fruits each. Quite a number of seed-growers are this year offering English Tomato-seed, and they will speedily usurp the places of the American varieties in indoor cultivation. A local market-grower marketed last season 2½ tons of Frogmore and Best-of-All from a house 100 feet by 15 feet, planted in January. The present wholesale price of Tomatos here is from 30 to 45 cents per pound; whereas, six or eight years ago as much as 1½ to 2 dollars per pound was frequently asked and obtained. The Tomato called Best-of-All succeeds very well out-of-doors with us, but all other imported varieties have turned out failures, the fruit coming soft, and cracking badly. *W. N. Craig, Taunton, Mass., U.S.A.*

PLANT NOTES.

APHELANDRA AURANTIACA ROEZLI.

THIS charming stove plant is now seldom seen in our plant-houses, and many of the younger members of the craft do not know it. It is quite a miniature plant, seldom growing more than 6 to 9 inches in height, the bright orange-scarlet spikes and grey foliage making it conspicuous among other stove-plants. The species grows best from seed, which is rather difficult to procure, except through the best houses in London. The seeds should be sown in strong heat, and the plants grown on in peat, leaf-mould, and sand, with a sprinkling of broken crock, the plants being kept in brisk heat, and well syringed daily. A flower-pot 4 to 6 in. wide is the largest required, and a plant will flower two and three times in a season. As a "dot plant" on a dinner-table, among suitable cut flowers, this plant has a very pretty effect. *A. J. L.* [It was described by us in *Gardeners' Chronicle*, 1867, p. 1214. ED.]

PLUMBAGO LARPENTÆ,

Owing to its distinct characteristics, deserves a place in all herbaceous borders, or such as are devoted to mixed hardy plants, if for no other reason than that it is so very distinct from other hardy subjects. Its specific name was given in honour of Lady Larpent, the fact may be recorded, as Sir William Hooker says it ought to be known as Valoradia plumbaginoides, which, I assume, was the name given it by Boissier. Considering Bunge (*Botanical Magazine*, 4487) named it Ceratostigma plumbaginoides, it would seem well to rely on Lindley's classification as above. Though the form of its flowers, and their intense blue colour, may not much resemble the ordinary Leadworts, that the leaves resemble the latter none can gainsay. Of Chinese origin, it may be said to have a distinctly tropical appearance. The young shoots, somewhat attenuated, rarely grow more than 18 or 20 inches in height, the blooms being thinly scattered amongst their apices. It requires a sunny situation, and is usually propagated by division, though it can be increased by cuttings dibbled out under handlights.

MERTENSIAS.

As herbaceous, or rockery plants, the several species of Mertensia are pretty, not to say showy, grown and flowered, as they deserve to be, in prominent positions. Mertensia virginica, the Virginian Cowslip, has blue flowers, resembling in tint that of the Gentians. It blooms early in the spring when the peculiar drooping, or more properly speaking, arching cymes of flowers always attract attention. Its suitability for rock-work shows itself from the fact that it succeeds best partly shaded by a boulder from the full sunshine, hence it will thrive upon somewhat westerly aspects, and it may be added that it has a preference for a peaty soil. Mertensia sibirica atro-cœrulea, probably the most robust-growing species, or sub-species, makes a good companion to the above; whilst M. sibirica has tubular, lighter blue flowers, of which a white-flowered form has lately been introduced. *William Earley.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

General Remarks on Shading.—That it is expedient to have ready for use all the necessary appliances, whether for affording heat or shade, was strikingly illustrated by the days of February 23 and 27 last. The former was a warm and cloudless day, with a temperature that reached 63°, whereas on the latter day the atmosphere was fog-laden, and the temperature several degrees below the freezing-point during the whole time. To be prepared for sunny days, the roller-blinds and other means of shading should be ready for use. Lath-roller blinds are rightly preferred by most growers for shading the Cattleya, Mexican, and Dendrobium-houses. They are suitable also for Odontoglossums, if a little extra shading be provided with garden mats on particularly bright days in summer. But for Cypripediums, Phalænopsis, Masdevallias, and numerous other species that have no pseudo-bulbs, some shading material is required that will break the sun's rays up a little more than do the lath blinds. The situation and aspect of the house should determine to some extent whether the shading material need be closely woven or not. Whatever material is used, it should always be raised 6 or 8 inches above the glass. Permanent shading of any description should be avoided as much as possible. For sides and ends of the houses, the canvas may be stretched on frames, which may be suspended on hooks, and thus be convenient of removal when necessary. Such questions as: When is shade required? How dense should it be? can only be answered in general terms, for certain species appreciate a fair amount of direct sunlight—such are Cattleyas, Lælias, Catasetums, Cycnoches, Dendrobiums, &c., and it is only necessary to shade them when the leaves feel warm to the touch. Vandas or allied genera must be shaded before strong sunlight reaches them, so also must most of the Cypripediums and Odontoglossums, Oncidiums, Maxillarias, Miltonias, &c. Masdevallias, Phaius tuberculosus, the warm-growing Zygopetalums, Anæctochilus, and Phalænopsis must be shaded, even when there is no absolute sunshine, if the light be of a glaring nature. There may be only a day or two during the present month when blinds need be used, but the variability of our climate is such that they should be fixed without delay.

Cycnoches chlorochilum, popularly known as the "Swan Orchid," is now making new roots, and tmay be repotted. The old roots die with the decay of the leaves, and they should be cut off to within 2 inches of the base of the pseudo-bulb, the length of dead roots left being useful to assist in firmly fixing the bulb in the new soil. The latter may consist of one part each of fibry loam, Orchid-peat, and sphagnum-moss. The plants do capitally in 4-inch, perforated pans, which should be suspended in the sunniest position in the East Indian-house. Very little water will be necessary until the weather is much warmer. Sometimes young growths appear some distance from the base of the bulb, and when these have thrown out roots, the bulb may be cut through about an inch below, and the separated piece potted, as advised above.

Catasetums should be repotted immediately signs of new roots appear, using pans which are just large enough to contain the plant conveniently. The compost recommended for Cycnoches may be used, with an addition of some small crocks. Catasetums are very susceptible to injury if water lodges in the growths, and the plants are safer suspended in the warm-house, where water from the syringe or other sources will not reach them. For a long time after they have been repotted, it is dangerous to apply any water, but the pan may be dipped occasionally about half its depth in warm rain water.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore Maidenhead.

Miscellaneous Operations.—As the buds of the fruit-trees are fast swelling, all arrears of pruning, nailing, and training should be pushed on with speed. The lower temperature experienced during the past week or two has been beneficial in checking the opening of the flower-buds, especially those of some varieties of Pears, and the blooming period will be deferred to probably milder weather. The planting of trees and bushes should be finished forthwith, the sun having considerable power, and the prevailing east wind being very drying, and consequently trying to such as are newly planted. Let all prunings be collected and burnt when the work is finished. The nails which may have dropped in manipulating the trees should be collected, and after burning them in a shovel and oiling them, they may be used again. After the nailing and tying of wall-trees is completed, the fruit-tree alleys should be cleaned with a rake, and the surface hoed, or be very thinly pricked over, just simply breaking up the surface. A light mulch of half-rotten stable-dung may afterwards be applied, which will be clean to walk upon in attending to the trees, and running together, it will not exclude sun-heat. With milder weather the borders near the wall should be examined, and if found to be dry, a good quantity of water should be applied. The beds of Gooseberry and Currant cuttings should have an examination, and where lifted by frost, the soil should be made firm about them. Now that the fruit and wood-buds are prominent, sparrows and bullfinches will be getting troublesome, and a sharp look-out must be kept, or the Gooseberry-bushes and Plum-trees will quickly be stripped of buds. While the weather continues dry, a thick coating of lime-wash is fairly effective as a deterrent, but it must be repeated after every shower.

FRUITS UNDER GLASS.

By W. STRUGNELL, Gardener to the Right Hon. W. H. LONG, Rood Ashton, Trowbridge.

Musas (Bananas).—Where these plants are grown in tubs or large pots, it is necessary to detach the suckers before they are far advanced, or their removal will result in injury, both alike to parent plant and sucker. Where they cannot be planted in a natural manner in a border, pits formed with walls are the best, as such give facilities for affording fresh soil to the mass as the roots extend, loose brick walls being quickly taken down and rebuilt, so as to include an increased area. By this method of treatment, the same site can be permanently devoted to the plants, as the mother plant, after the fruit-cluster is cut, may be readily removed, and the sucker at its base allowed to remain. The exhausted soil in which the plant grew should be replaced by new, and the work is not nearly so laborious as that attending tub or pot-culture. Stove temperature and a rather lofty house are necessary for success in Musa cultivation. The moist air of an ordinary plant-stove suffices, together with the usual syringings. In regard to plants freshly potted or planted-out, water should be carefully given at the first, but as the plants get established they will take it in abundance during the summer. The planting or potting must be firmly done, and the soil and manure should be used in a lumpy, rough state, which renders this the more necessary. When in full growth liquid-manure may be freely employed. Soot sprinkled on the surface and stirred in, or in the form of clear soot-water, is excellent for imparting depth of colour to the leaves.

The Cucumber-house.—If the plants are in good health, growth will now be more vigorous than hitherto, and a frequent stopping of the shoots will be called for, as well as the removal of the weaker shoots and old leaves that have fulfilled their functions, and are now almost useless. Let all shoots left for fruiting or extension be tied to the trellis at short intervals of time. As fast as the roots appear at the surface of the beds or hillocks, apply a top-dressing of rich pasture loam and rotten stable-manure, omitting the latter, however, if the plants possess desirable vigour. Water should be afforded at the root in accordance with the state of the soil, the weather, and the method of affording heat, beds situated directly over hot-water pipes needing it more frequently than those made up on beds of fermenting stable-litter and tree-leaves. The cultivator should endeavour to maintain the beds in an uniformly moist state. Let the foliage be syringed morning and afternoon, and be sure to damp the floor, walls, &c., often. The variable weather at this season renders the giving of air a rather tiresome matter, as while bright sunshine prevails there is usually a piercing wind from east or north, which, if admitted untempered, work ill on the plants. The ventilators should be covered with pieces of Nottingham hexagon netting, in order the better to distribute the air; and they should, if possible, only be opened on the side from which the wind does not blow.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Propagating Plants.—Most species of stove and greenhouse plants may be progagated during the present month; and as a rule, those cuttings strike the most readily which are taken from plants starting into growth after a period of rest; and therefore plants from which it is intended to propagate, should now be encouraged to make a strong short-jointed growth. This may be accomplished by introducing them to a house where a higher temperature and a moister atmosphere is maintained than in that they have hitherto occupied. The cuttings should be taken off as soon as they have attained a sufficient length, which varies with different plants, but the shoots are generally long enough when they have made from three to five joints. Many soft-wooded plants emit roots readily from any part of the young shoots, but as a general rule, it is best to make a clean cut immediately below a joint. Cuttings of Panicum and Tradescantia for furnishing the edges of stages and for decorative purposes, should be inserted in such quantities as may be required. Likewise Clerodendron fallax [Fine also from seed. Ed.], Justicias, Libonias, Gardenias, Begonia Gloire de Lorraine, and other Begonias, both species and crosses; Ixoras, Franciscea, Coleus, Abutilons, Fuchsias, Heliotropes, &c., all of which strike readily in the propagating-frame, or in an ordinary hotbed-frame. Plants of Isolepis and Eulalia gracillima variegata may be divided and potted in small pots.

Hippeastrums (Amaryllis).—The latest batch of bulbs should now be re-potted. After shaking the soil from the roots, preserving all of the latter which are in a sound condition, place the bulbs in 6-inch or 7-inch pots, according to size, affording a porous compost, consisting of two parts good loam and one part flaking leaf-soil, with plenty of sand. When the potting of a bulb is finished, half of its height should be above the soil. Plants required to bloom late may be allowed to start into growth in a temperature of 50°, but those that are to flower quickly should be placed in a moist heat of from 55° to 60°. Bulbs which have started into growth should not have the soil shaken from the roots, but the drainage should be examined and made good if defective, and the surface-soil removed to the depth of 1 or 2 inches, and replaced with fresh soil, to which may be added a sprinkling of bone-meal.

Seeds.—Many of the tender and half-hardy annuals are extremely useful for the furnishing of the greenhouse and conservatory. Among these may be mentioned Celosias, Cockscombs, Schizanthus, China Asters, Balsams, Globe Amaranth, Nicotiana affinis, Petunias, Ipomœas, Exacum affine, Maurandyas, Lophospermums, Rhodanthe, Torenia, &c. The following, although perennials, are best treated as annuals. Celsia arcturus, Hibiscus Manihot, and Trachelium cœruleum. Seeds of the above may be sown in pots and placed in an intermediate-house or pit on a cinder-bed, or plunged in a mild hot-bed not far from the glass, and carefully shaded. When the seedlings have made a "rough" leaf, they should be pricked off into pans or boxes, and returned to the same house or frame for a few days, after which they may be removed to a cooler pit or frame. When large enough, the seedlings should be pricked off into other pots, and subsequently potted. They will require one or two shifts before the final one, which may be into 48's or 32's. Exacum affine and Ipomœas succeed best in a warmer temperature until the beginning of June, when they may be transferred to the greenhouse or conservatory.

Carnations.—The remainder of the autumn-struck tree Carnations should now be placed in the pots in which they are to flower. If the plants have been wintered in 60's, they may be shifted into 6-inch pots; but if they are strong plants in 48's, a 7 or 8-inch pot will not be too large. Keep the Souvenir de la Malmaison varieties in a pit, or near to the glass in the greenhouse; but the summer-flowering show varieties of Carnations may be stood out-of-doors at the end of the month or early in April, thereby affording house-room for more tender subjects.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Herbaceous Phloxes.—In order to obtain fine trusses of bloom, these old stools should be taken up, and from the circumference of the clumps pieces with half-a-dozen strong shoots should be selected for replanting. The new stations or beds should be deeply dug after being manured, some good loam being also used. Phloxes delight in abundance of water in the hot weather, and to have plenty of subdued light, and no exposure to full sunshine. For the purposes of exhibition, the plants should be grown from cuttings taken in the early autumn and struck in a cold frame, or from young shoots taken at this season from potted roots brought on in gentle warmth. These cuttings should be struck in pots filled with sandy soil and plunged in a mild heat. The shoots should be reduced to three or four, and no others allowed to grow. The varieties of P. suffruticosa flower early in the summer, and those of P. decussata in the autumn months. There are splendid varieties of both of these, but the self-colours and those with a symmetrical eye of bright colour are the more effective.

Gladiolus.—Any corms starting into growth may be planted in borders of other plants or in beds by themselves, or amongst small dwarf shrubs. The soil should first be well dressed with rich loam, stable-dung, or crushed bones, and be trenched or deeply dug. When the ground has settled, let the corms be planted 6 inches deep, and before covering them with the soil, sprinkle them with soot. When the plant is grown in beds for cutting purposes, it suffices to draw deep drills 9 inches apart in prepared land, and plant the corms at 6 inches apart. Any which have not started may be planted in about a fortnight; they will form a succession. M. Lemoine's hardy hybrids are dwarf, and beautiful early-flowering varieties. G. Childsii has flowers of great size and substance; G. Brenchleyensis, one of the hardiest, and therefore the best for planting in shrubberies, is of a dazzling scarlet colour; and generally G. gandavensis varieties, with regard to brilliancy and variety of colour, are unequalled.

Begonias.—If the seed sown as was advised by me in the month of February has germinated, the plantlets, when strong enough, may be pricked out in pans, prepared as for sowing, at 1 inch apart, and large enough to take the roots without cramping them. Lift each little plant with a flat stick, notched at the bottom, and let the roots fall into the holes; press the soil gently over them, taking care not to bruise the young leaves; sprinkle the soil lightly with a fine-rose pot, and cover each pan with a sheet of glass for a few days. Avoid damp, and watch that insects do not harm them.

Sweet Peas.—These flowers are beautiful when cut for house decoration, and effective in the garden, and by sowing at about this date, and successively to the middle of the month of June, a lengthy supply of them may be obtained. Many gardeners fail in growing the plants to perfection by having a soil that is too rich in nitrogen, and putting in the seed thickly. Let the seeds be placed 2 inches apart, not nearer, in drills 3 inches deep. The ground should be deeply trenched, but not recently manured, and the position should be cool, and not fully exposed to the sun. Where the plants show blossom, liquid manure is beneficial.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Sea Kale.—The plants reserved for the latest supply should now be covered up, and the crowns kept in darkness. The forcing pots and heating material must be removed from the beds where the crop has been gathered, a slight covering only being left to protect the crowns. About the end of the month the crowns may be cut over 2 inches beneath the soil, this applying also to crowns which have not been forced. This will have the effect of preventing flowering, which is always injurious. New plantations may now be made, using straight pieces 6 inches in length and of uniform thickness, leaving the smaller sizes for planting on one side of the beds, so that when the roots are lifted, the best may be taken up in rotation. The sets may be planted with the tops 2 inches below the surface, and the holes filled to the surface with fine soil, or a little sifted coal-ashes. Any good crowns kept for a very late supply, may be kept in bundles and well covered under a north wall till growth commences, when they may be removed to the Mushroom-house to be blanched.

Globe Artichokes.—If more plants are wanted, suckers or side-shoots should be taken up, potted, and stood in frames till established, and then be planted on well-prepared land, or at a later date in the warmer parts of the country. The suckers may be dug up and planted straight away in groups of three at 12 inches apart, and 4 feet between the groups. Seeds of Globe Artichokes may be sown in pots and pans, and the seedlings forwarded under glass. These with care will yield a moderate supply of heads towards the end of the summer. Some growers sow one seed in a 60-sized pot, or three seeds in a 48.

Tomatos.—A sowing of seeds of the Old Red or other free fruiting variety in the open air, should be made, if the situation be very favourable for ripening the fruit of the Tomato out-of-doors. Ham Green Favourite, Chemin Rouge, and Sutton's Perfection, are also suitable, and great crops are harvested in ordinary seasons. The plants should be kept steadily growing the whole time. The plants, especially in the colder parts of the country, should be fully 2 feet high or more at planting-time, and the stems kept clear of side-shoots. The first week in June is early enough to plant them out-of-doors.

Capsicums and Chilies.—A sowing may be made in heat at this date, and the seedlings grown on in the intermediate-house. In very warm parts, the plants may be planted in June at the foot of a south-wall, and they will fruit well, but ordinarily the plants should be kept under glass the entire season.

Chives, &c.—The old clumps should be divided and replanted on fresh heavily-manured land at a distance of 1 foot apart. Fresh beds of Camomile may be formed by planting shoots with roots attached at 1 foot apart. Seeds of this plant may also be sown. The situation of the bed should be warm and dry.

Pennyroyal may now be planted, also any other herbs that will grow from divisions of the roots. A timely attention paid to the herb border will always result in plenty of herbs for kitchen and still-room use, whereas neglect of this necessary part of the garden usually brings never-ending complaining.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	MAR. 11	Royal Botanic Society, Meeting.
MONDAY,	MAR. 13	Annual Meeting of the United Horticultural Benefit and Provident Society.
TUESDAY,	MAR. 14	Royal Horticultural Society Comm., Meeting. National Rose Society, Committee Meeting. Royal Horticultural Society of Ireland, Meeting.
THURSDAY,	MAR. 16	Linnean Society, Meeting.

SALES.

MONDAY,	MAR. 13	Roses, Gloxinias, Spiræas, Hardy Perennials, &c., at Protheroe & Morris' Rooms.
TUESDAY,	MAR. 14	Lilies, Carnations, Hardy Border Plants, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	MAR. 15	Japanese Lilies, Continental Plants, Palm Seeds, Roses, &c., at Protheroe & Morris' Rooms.
FRIDAY,	MAR. 17	Imported and Established Orchids, at Protheroe & Morris' Rooms. Pæonies, Spiræas, English-grown Lilies, Dahlias, &c., at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period February 26 to March 4, 1899. Height above sea-level 24 feet.

1899. February 26 to March 4.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Temperature of the Air. At 9 A.M. Wet Bulb.	Temperature of the Air. Day. Highest.	Temperature of the Air. Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	Temperature of the Soil at 9 A.M. At 2-feet deep.	Temperature of the Soil at 9 A.M. At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 26	N.E.	50·0	30·0	43·1	26·2	...	37·2	41·6	45·1	15·5
MON. 27	N.E.	24·8	24·8	29·5	23·3	...	36·3	41·0	44·9	16·5
TUES. 28	W.S.W.	24·8	24·8	47·9	20·5	...	35·5	40·5	44·8	13·5
WED. 1	W.S.W.	37·8	33·5	54·8	24·6	...	35·5	39·9	44·5	15·3
THU. 2	W.S.W.	36·5	33·3	48·9	26·5	...	35·5	39·7	44·2	16·5
FRI. 3	N.W.	35·1	34·8	50·0	28·0	...	35·6	39·5	43·9	21·5
SAT. 4	W.S.W.	35·3	34·8	48·1	30·2	0·02	36·9	39·7	43·6	22·0
MEANS...	...	39·9	32·4	39·7	25·3	Tot. 0·02	36·3	40·5	44·3	17·7

Remarks.—Every morning has been more or less foggy, followed later by bright sun. The temperature has been lower than in any previous week during the winter. On Saturday, March 4, there was a slight hailstorm.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—42·4°.

ACTUAL TEMPERATURES :—

LONDON.—*March* 8 (12 P.M.): Max. 52°; Min. 32°.

PROVINCES.—*March* 8 (6 P.M.): Max. 46°, Southern Counties; Min. 39°, N. W. Ireland.

Paris Exhibition of 1900.

IT is high time that intending exhibitors in the horticultural department should notify their intentions to the Secretary of the Horticultural Department, Paris Exhibition, St. Stephen's House, Victoria Embankment, Westminster. The full details are not as yet to hand, but the space allotted will be seen marked "Grande Bretagne" on the ground-plan shown in our Supplement. The situation is an admirable one, and it is to be hoped that British exhibitors will avail themselves to the full of the opportunity offered them. It is suggested that in due season exhibitions of British-grown fruit should be made.

A committee has been appointed to look after British interests in the matter. This committee is presided over by Sir TREVOR LAWRENCE, Bart., the President of the Royal Horticultural Society, and contains among its members Sir W. T. THISELTON DYER, Mr. HARRY VEITCH, Dr. SCHLICH, Dr. MASTERS, and others.

The plans show the general nature of the building, with ground plan, section of one of the domes, &c. We may mention, that in some other departments of the agricultural section, the applications for space are already very numerous, and for the credit of British horticulture, and the interests of the exhibitors themselves, it is very important that those intending to take part in the exhibition should notify their intentions to the secretary of the committee, whose address is above given.

The Gardeners' Royal Benevolent Institution.

WE most willingly give a place to the following letter from Mr. OWEN THOMAS, of the Royal Gardens, Frogmore, and we cordially endorse his statements :—

"As a member of the committee of the above Institution, I hope I may be excused for approaching my fellow gardeners for the purpose of endeavouring to influence them to give a more general and generous support of its funds. I am not asking others to do what I have not attempted to do myself, as I have striven to do my best for the Institution. It is difficult to understand why all gardeners do not rally round this splendid property of £30,000, especially when it is said that every shilling of it is their own. One would think that even from motives of selfishness, if from no higher motive, every gardener would strive to do all in his power to promote its usefulness and prosperity. There cannot be fewer than 30,000 gardeners, nurserymen, growers, and others engaged in horticultural pursuits who are, or ought to be, interested in its welfare, and if as many of these as can afford it subscribed their guinea a year, and if the remainder who are unable to do this were to collect small sums annually for the benefit of its funds, the question of old age pensions, so far as it relates to gardeners, would be solved.

"Objections have been advanced by many persons against the Institution because it is not founded on the lines and principles of a benefit society, where a member can claim help at any time in case of need. On the surface this may appear to be a reasonable objection, and, I am afraid, it has been the cause of many not subscribing to its funds ; but on a little consideration, this objection may be proved to be an erroneous one, and especially so in the case of gardeners whose wages are scarcely ever stopped in time of sickness, and who, therefore, do not feel the pinch of poverty at this time as mechanics and others who are paid by the hour, and whose pay is stopped when work ceases. As bearing on this point, I may say I have been a member of a benefit society for upwards of twenty years, paying about 22*s*. a year, and if I am to remain a benefit member I shall have to go on paying that sum as long as I live, and in case of sickness and permanent disability from work, I am entitled to 10*s*. a week for the first year, about 7*s*. the second year, and after that I believe the pay is reduced to 3*s*. per week for life. Let me ask my fellow-gardeners who are still sceptical on this point, to compare this with the advantages offered by the Gardeners' Royal Benevolent Institution, even from a benefit point of view, where, after subscribing a guinea for fifteen years, or £10 10*s*. down, a member or his widow is almost certain to be placed on the pension list if the case is deserving and the candidate is incapacitated from work and in need, receiving without any further cost or trouble £20 or £16 a year for life.

"Another objection has occasionally been levelled at the institution, viz., that some gardeners who had subscribed but little, and others who had not subscribed at all, are occasionally elected pensioners. On this point I may say that, we must not lose sight of the fact that by far the largest proportion of the funds of the institution has been, and is, subscribed by people indirectly connected with gardening out of pure benevolence for the relief of aged and distressed gardeners. I, for my part, should be very sorry to see this principle of benevolence infringed upon or curtailed in any way. I hope and believe it will not be allowed to impose a barrier to prevent subscriptions flowing in. The committee have introduced a clause into their rules giving almost absolute certainty of election to those candidates for assistance who may have subscribed for fifteen years, and the new rule passed at the special general meeting (December, 1892) will give subscribers substantial advantages over non-subscribers, inasmuch as a subscriber for four years will have fifty votes credited to him, and fifty more added for every year subscribed afterwards up to fourteen years, and thus the gardener with few influential friends is placed more on an equality with those who have that advantage.

"In addition to the above advantages, giving benefits only to those who have subscribed, and who may unfortunately some day become candidates for the help of the charity for themselves or their widows—we none of us know, the wheel of fortune is always turning round, picking some up, and casting others down daily.

"In 1897 (the Diamond Jubilee year), at the instigation of Mr. HARRY J. VEITCH (one of the best friends the Institution has ever had), the Victorian Era Fund was established, and although this Fund is not yet two years old, so great has been the success attending its formation that the sum of £5000 has been subscribed, which sum is invested in Great Western Railway Stock, bringing in an annual income to the charity of £130. This Fund was conceived and established entirely in the interest and on behalf of those gardeners who had befriended the Institution by subscribing to its funds, and no non-subscriber will ever receive a penny benefit from it. The money is expended in the form of gratuities to unsuccessful candidates at each election. Each one who may read these lines, and has a touch of kindness in his heart, can depict to himself much better than I can describe the comfort this gratuity affords. The gratuities range from £10 to £1, according to the number of years the candidate may have subscribed. I have mentioned this fund in order to show my fellow gardeners that the Committee are not unmindful of the prior claims of those who have helped the Charity in their days of health and strength, and also in the hope that this action of the Committee will favourably commend itself to gardeners generally, and as a result help to bring in a large accession of gardeners' annual subscriptions and donations.

"May I point out a way that has been opened out within recent years which makes it practical and easy for gardeners to help the unfortunate members of the Craft in their own district or county, as well as the general interests of the Charity. I allude to the Auxiliary Committees which have been established at a few centres in county districts, notably those of Worcester, Bristol, Wolverhampton, and Exeter. Each of these centres has established strong local effort, and is doing most useful work. Worcester especially, in consequence of the energetic and strong lead of Mr. WHITE and Mr. CRUMP, have done yeoman service for the Institution ; so also have Mr. J. H. VALLANCE, the admirable Bristol secretary, Mr. R. B. LOWE of Wolverhampton and his colleagues, and Mr. W. MACKAY of Exeter, as well as friends in Birmingham. This opens out a way for any district or county to place their own local candidates

W. DUNCAN TUCKER,

Horticultural Builder & Hot-Water Engineer,

EVERY DESCRIPTION of CONSERVATORIES, GREENHOUSES, GARDEN LIGHTS, &c.

ORCHID-HOUSES,
PEACH-HOUSES,
VINERIES and
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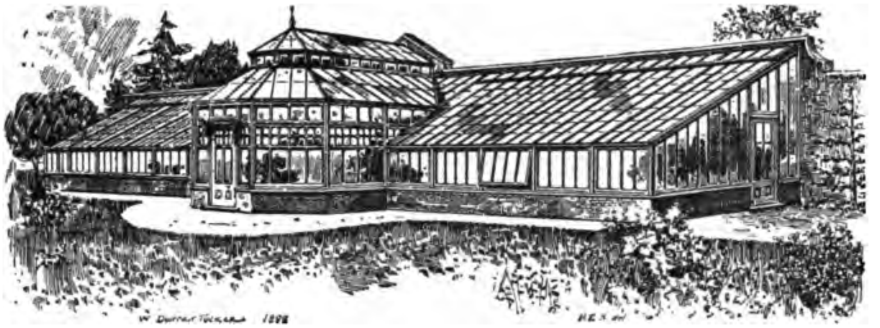
TOMATO-HOUSES,
PLANT and
FRUIT-HOUSES.



ORCHID-HOUSES,
PEACH-HOUSES,
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PLANT and
FRUIT-HOUSES.

Estimates on Application. Catalogues Free.

GARDEN FRAME, No. 38.

GLASS STRUCTURES at REGENT'S PARK, for H.M. Board of Works, Whitehall, have been erected by me.

Prepared of Yellow Deal, lights 2 in. thick, glazed with 21 oz. glass, painted two coats.

Ft. ft.	Price.	Ft. ft.	Price.
3 by 4	.. £0 18 0	4 by 4	.. £1 10 0
4 by 4	.. 1 2 0	6 by 4	.. 2 4 0
4 by 6	.. 1 14 0	8 by 6	.. 3 10 0
8 by 6	.. 2 15 0	12 by 4	.. 4 0 0
12 by 6	.. 3 15 0		

Carriage paid on order of 50s. to most Stations.

PLANT PRESERVER, No. 37.

LAWRENCE ROAD, TOTTENHAM, N. (Three Minutes from Seven Sisters Station, G.E.Ry.)

BENTLEY'S

INSECTICIDE { surpasses all others for exterminating Mealy Bug, Scale, and Thrips. Free from poison, and entirely safe. *Bottles 2/- and 3/6 ; ½-gallon, 5/- ; 1 gallon, 9/- each.*

VINE MANURE { Concentrated. Safe. Lasting. Greatly increases the size, and improves the quality and colour of the Grape, and prevents shanking. *½-cwt.*, 9/-; 1 *cwt.*, 16/-; 5 *cwts.*, 15/- *per cwt.*

FRUIT, PLANT, and VEGETABLE MANURE.

Superior to best Peruvian Guano for Fruit Trees, Flowering and Foliage Plants. Unequalled for Tomatos and Strawberries.

7/6 Orders and Upwards Carriage Paid. *½-cwt.*, 8/- ; 1 *cwt.*, 15/- ; 5 *cwts.*, 14/6 *per cwt.* **Catalogue Post Free.**

JOSEPH BENTLEY, Ltd., Chemical Works, Barrow-on-Humber, HULL.

W. COOPER, LTD., Horticultural Providers, 755, OLD KENT ROAD, LONDON, S.E.

GREENHOUSES.

Everything complete, ready for erecting.

From £2 5s.
Send for LIST.

Cucumber Frames.

ONE LIGHT.

4ft. by 3ft.	...	17s.
6ft. by 4ft.	...	28s.

TWO LIGHTS.

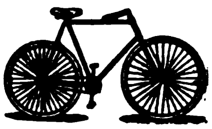
6ft. by 4ft.	...	30s.
8ft. by 6ft.	...	50s.

Garden Lights.—Painted and Glazed with 21 oz.

3ft. by 2ft.	...	5/- each.
4ft. by 3ft.	...	6/6 ,,
6ft. by 4ft.	...	9/- ,,
Unglazed.		
6ft. by 4ft.	..	3/6 ,,

Special Quotations for large quantities.

"COOPER" CYCLES.

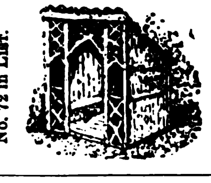


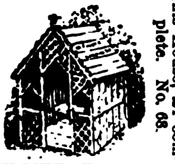
Latest Frame, Best Weldless Steel Tubes, 1899 Improved Bottom Bracket, Tangent Wheels, Brake and Mud Guards. Gent's from £5 10s. Ladies' from £6 (with Dress and Gear Guards). Twelve months' Warranty. LISTS Free. Agents Wanted.

HORTICULTURAL TIMBER, IRON, AND GLASS.

We hold the Largest Stock in the Trade. See List. Special Quotations for Large Quantities.

Made in Sections. Complete, £3 10s. No. 72 in List.



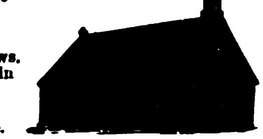


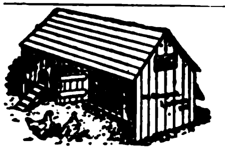
See LIST, post-free. This House, £4 complete. No. 68.

ILLUSTRATED LIST POST-FREE.

Iron Buildings of Every Description.

Churches, Temporary Hospitals, Bungalows.
Packed on rail; or erected in any part of the Kingdom.
See LIST, post-free.
Plans and Estimates Free.





New Span-Roof Improved Poultry House.

4ft. long, 4ft. wide, 6ft. high to ridge, 23s.

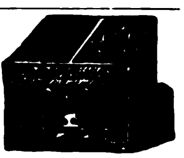
For other sizes and prices, see LIST, post-free.

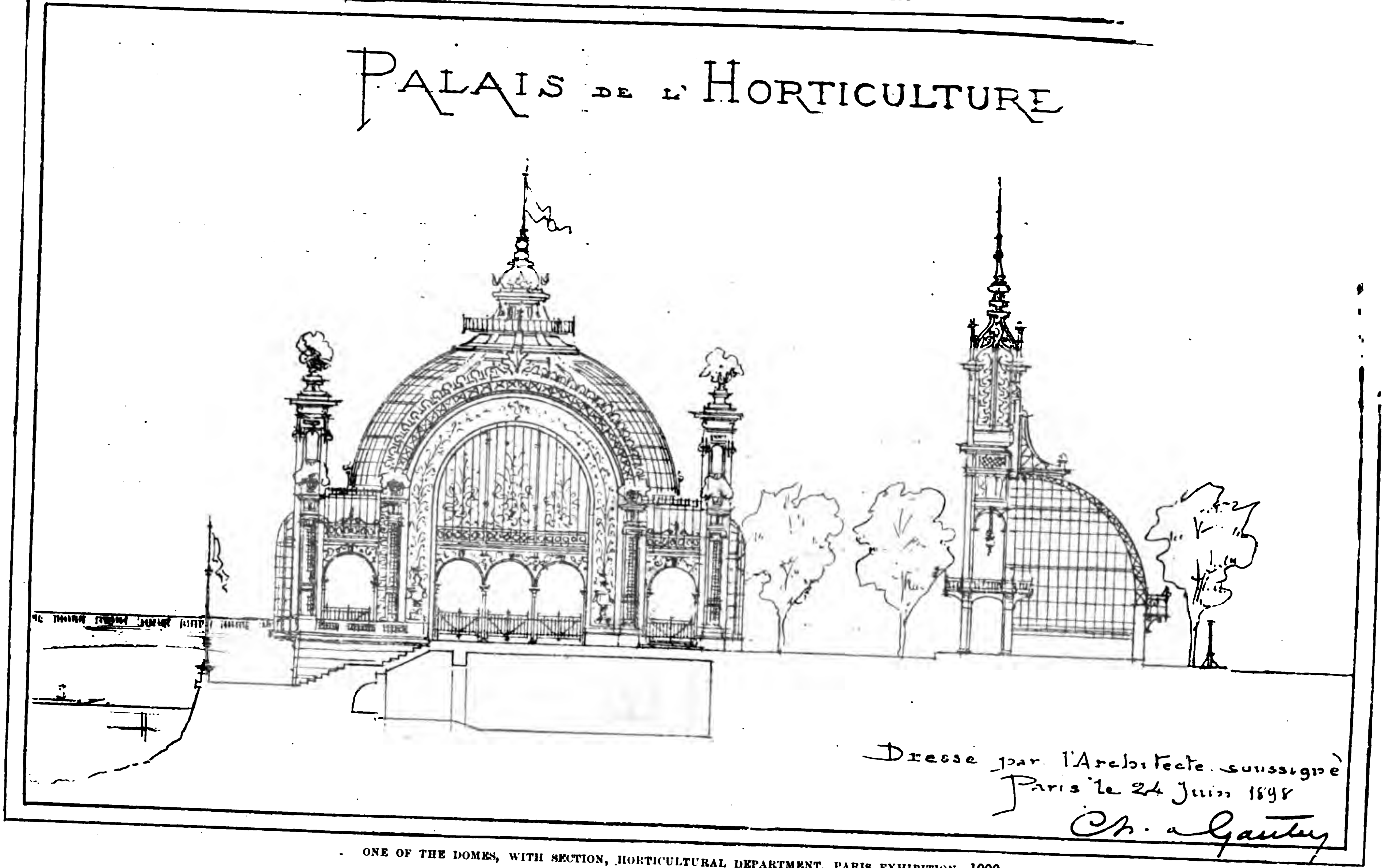
Rapid Propagators for Raising Plants

From Seeds, Slips, or Cuttings.

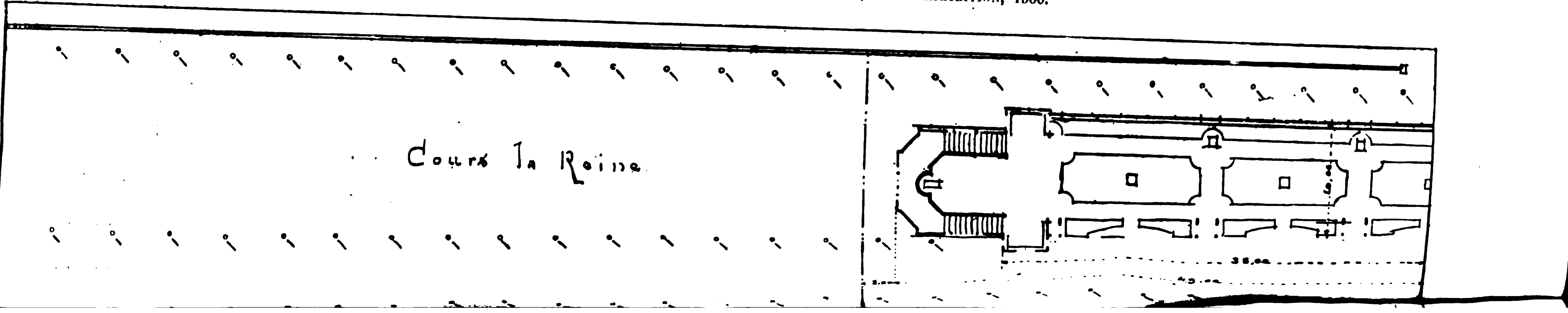
1ft. 8in. by 1ft. 6in.	... ...	16s.
2ft. 6in. by 1ft. 10in.	... ..	20s.
4ft. by 2ft.	... ...	40s.

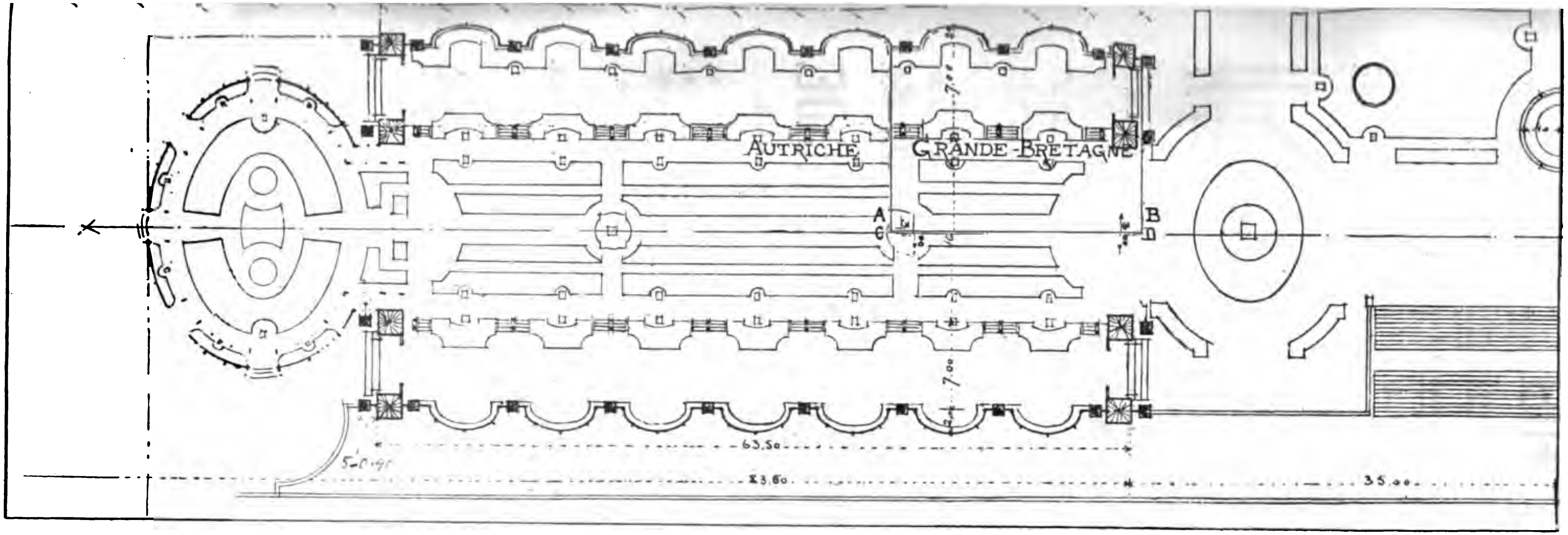
The Glass not included for top, as packing costs more than value.



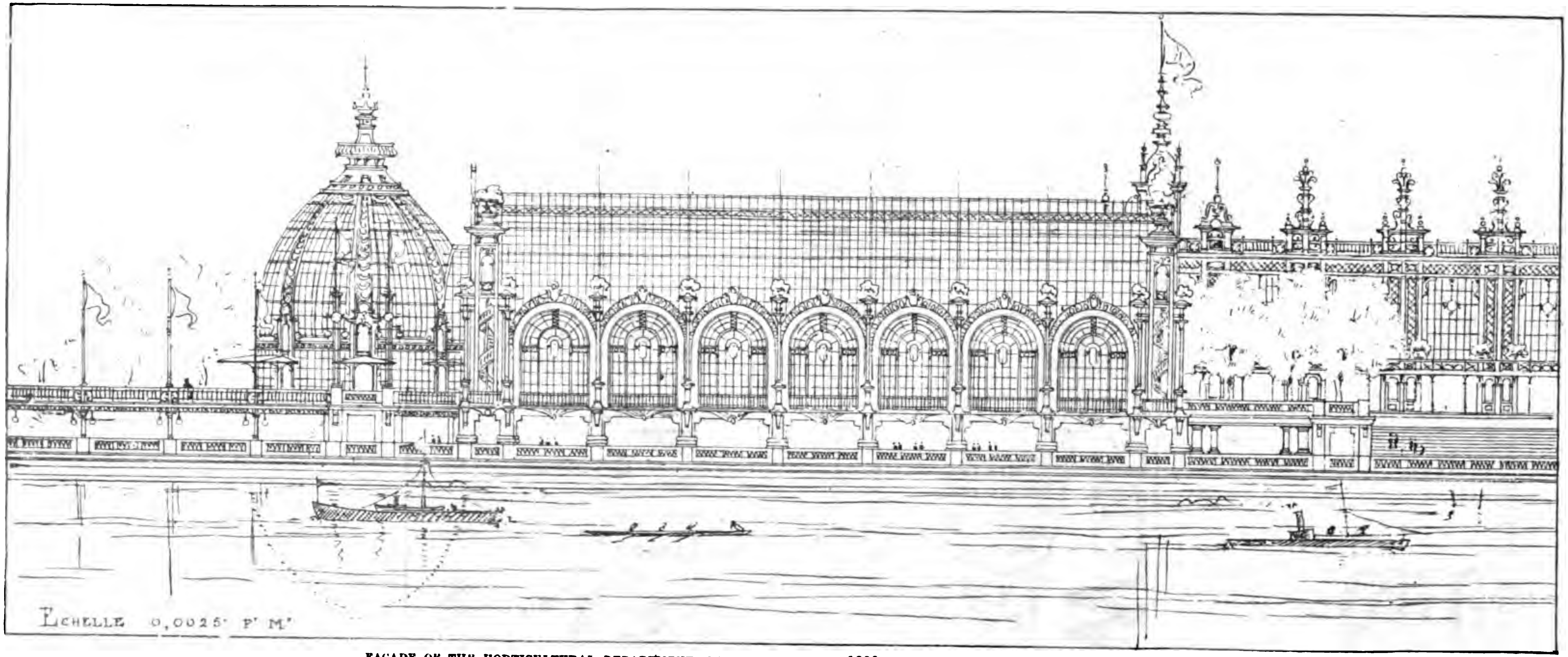


ONE OF THE DOMES, WITH SECTION, HORTICULTURAL DEPARTMENT, PARIS EXHIBITION, 1900.





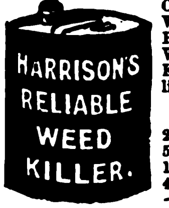
GROUND PLAN OF THE HORTICULTURAL DEPARTMENT, PARIS EXHIBITION, 1900 ONE HALF ONLY SHOWN.



FAÇADE OF THE HORTICULTURAL DEPARTMENT, PARIS EXHIBITION, 1900. ONE HALF OF THE BUILDING ONLY SHOWN.

See p. 152.

WEEDS! WEEDS! WEEDS!



One application of Harrison's "Reliable" WEED KILLER will keep your Garden-Paths, Carriage-Drives, &c., free from Weeds for at least 12 months. The best Killer for Daisy, Plantain, and Dandelion in Lawns. Brightens the Gravel.

Immense saving in Labour.

1 Gallon 2/6, drum 9*d*., carriage, 9*d*.;
2 Gallons 5/-, drum 1/3, carriage, 1/-;
5 Gallons 11/3, drum 3/-, carriage paid;
10 Gallons 20/-, drum 5/-, carriage paid;
40 Gallons 70/-, cask 5/-, carriage paid.

Irish Orders are not subject to these Carriage terms, but are paid to any English port.

Full price allowed for all drums and casks, if returned in good condition, carriage paid within two months.

N.B.—In the prices of the above, please note that this Weed Killer mixes 1 to 50 of water, being *double* the ordinary strength. One gallon mixed with 50 gallons of water will cover an area of from 150 square yards *effectively*.

We can supply Powder Weed Killer also, but recommend the liquid as giving less labour, greater satisfaction, and greater economy. Please plainly address all orders—

GEO. W. HARRISON, Horticultural Chemist,
"C." Dept., 22, Cross Street, READING.
Testimonials on application.

WEBBS' FERTILISERS FOR VEGETABLES & FLOWERS

For VINES	per bag of 28 lb.	6/-
For POTATOS	ditto	5/-
For TOMATOS	ditto	6/-
For CHRYSANTHEMUMS ...	ditto	7/6
For LAWNS	ditto	6/-

WEBBS' COMPOUND MANURE.
THE BEST GENERAL MANURE FOR VEGETABLES & FLOWERS.
1 lb., 1*s*.; 3 lb., 2*s*. 6*d*.; 7 lb., 5*s*.; 28 lb., 13*s*.
Reduced Rates for large quantities on application.

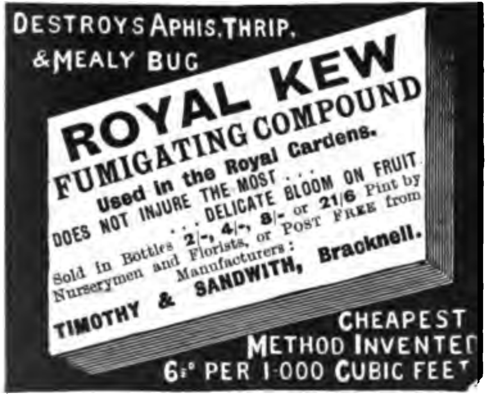
OUR MANURE WORKS AT SALTNEY, CHESTER, ARE 5 ACRES IN EXTENT.

WEBB & SONS,
The Queen's Seedsmen, Wordsley, Stourbridge.

CANARY GUANO
FOR GREENHOUSE & GARDEN
THE BEST IN THE WORLD.

Tins: 6*d*. & 1*s*. each; Bags, 14 lb., 4/6; 28 lb., 7/6; 56 lb., 12/6; 1 cwt., 20*s*. each. Full directions for use on each tin.

PERFECTLY CLEAN, MAY BE USED BY A LADY.
Retail of all Seedsmen, Nurserymen, Florists.
Wholesale of THE CHEMICAL UNION, Ltd., Ipswich.


DESTROYS APHIS, THRIP, & MEALY BUG

ROYAL KEW FUMIGATING COMPOUND

Used in the Royal Gardens.

DOES NOT INJURE THE MOST . . . DELICATE BLOOM ON FRUIT . . .

Sold in Bottles 2/-, 4/-, 8/- or 21/6 Pint by Nurserymen and Florists, or POST FREE from Manufacturers:

TIMOTHY & SANDWITH, Bracknell.

CHEAPEST METHOD INVENTED 6d PER 1·000 CUBIC FEET

THE EVESON COAL & COKE CO., Ltd.,
BIRMINGHAM.

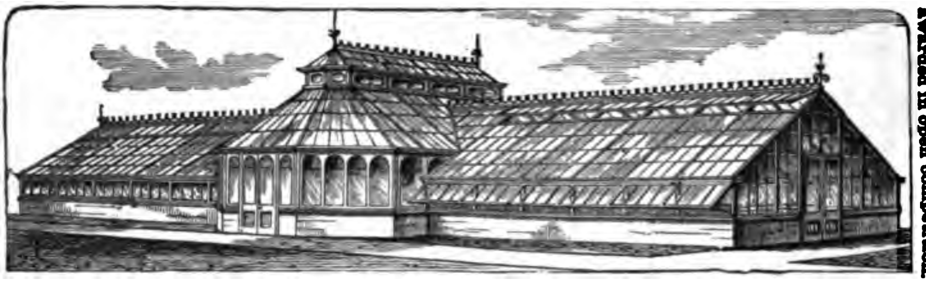
EVESON'S ANTHRACITE,
LARGE AND COBBLES; ALSO
COKE,
FOR HORTICULTURAL PURPOSES.
WRITE FOR PRICES.

FUEL SEMI-SMOKELESS Steam Coal, IN VARIOUS SIZES, SUITABLE for GREENHOUSES.

Also ANTHRACITE, large and cobbles. Coke and House Coal. Delivered in trucks of 8 to 10 tons, to any railway station. Prices on application to—

PHILLIPS & CO., Ltd., Coal Exchange, E.C.

Five 1st Prize Medals recently awarded in open competition.



Five 1st Prize Medals recently awarded in open competition.

R. HALLIDAY & CO.,
HOTHOUSE BUILDERS and HOT-WATER ENGINEERS,
ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of anyone out of our firm, from the smallest to the largest. **Hot-water Heating Apparatus**, with really reliable Boilers, erected, and success guaranteed in all cases. **Melon Frames, Sashes, Hot Bed Boxes, &c.**, always in Stock.

Plans, Estimates, and Catalogues Free. Customers waited on in any part of the Kingdom.

Our Maxim is and always has been—

MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.

NO MORE TROUBLE WITH FLY, THRIP, MEALY-BUG, &c.

HIGHEST AWARD, International Horticultural Exhibition, London, 1892.

CAMPBELL'S FUMIGATING INSECTICIDE.

NO LAMP, FUMIGATOR, OIL, OR SPIRIT REQUIRED.

SIMPLY LIGHT THE ROLL, AND HANG IT UP.

CAMPBELL'S FUMIGATING INSECTICIDE.

REDUCED PRICES.

No. 2 Roll for 500 feet	...	5d.
No. 3 Roll for 1000 feet	...	8d.
No. 4 Roll for 2000 feet	...	1s. 9d.

Awarded First-class Certificate at the International Horticultural Exhibition, London, 1892.

LEMON OIL INSECTICIDE.

THE BEST LIQUID INSECTICIDE for SPONGING, DIPPING, or SYRINGING WITH.

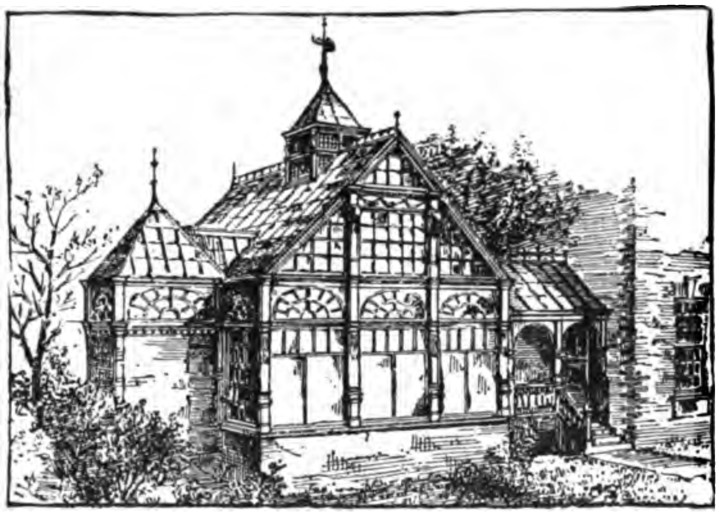
PRICES:—Pint Tins, 1*s*. 6*d*.; Quarts, 2*s*. 9*d*.; Half-gallons, 5*s*.; Gallons, 9*s*.

SOLD BY ALL SEEDSMEN.

SPECIAL QUOTATIONS TO NURSERYMEN and MARKET GROWERS.

WHOLESALE BY EXORS. ROBERT CAMPBELL, 117, CHAPEL STREET, SALFORD.

Crompton and Fawkes,



HORTICULTURAL BUILDERS,
HEATING ENGINEERS,
BOILER MAKERS.

Designers and Manufacturers of CONSERVATORIES, RANGES, VINERIES, FORCING-HOUSES, & every description of HOT-HOUSE

Best Quality. Lowest Prices.

Surveys made in any part of the Country. Estimates Free.

New Large Illustrated CATALOGUE Post Free on application.

CROMPTON & FAWKES,
CHELMSFORD.

on the funds with their own votes (all they have to do is to secure plenty of local subscribers) as the auxiliaries I have mentioned are now able to do, and if they are fortunate enough not to have a local candidate, then they still have their votes to give to whom they please.

"Let me appeal to the gardeners in every county to appoint a local committee in every centre of importance in order to band themselves together to do some little in any way which may suggest itself to them to help forward the good work of this splendid charity. It only wants a few kind hearts and willing spirits to take the lead, and hundreds, nay, I hope thousands, will follow.

"The executive committee in London give cheerfully and freely their time and their thought at considerable cost to many of them living at a distance, without hope or wish for reward further than the pleasure always derived from association with the work of benevolence and charity. But the responsibility is great. The institution has 174 pensioners on its hands, at an annual cost of £3,164. My friends, this is no light matter. Is it, therefore, too much to ask and to hope that our gardening friends in the country will imitate and emulate the successful examples I have quoted, and come more to our help.

"Our excellent and indefatigable secretary, Mr. Ingram, 175, Victoria Street, Westminster, S.W., will be delighted to help in any way possible to bring about this desirable result. *Owen Thomas, Royal Gardens, Frogmore, March* 2, 1899."

ROYAL HORTICULTURAL SOCIETY.—A meeting of the committees of this Society will be held on Tuesday next, March 14, in the Drill Hall, Westminster, when a lecture on "The Duke of Bedford's Experiments at Woburn: their Object and Method," will be given by Mr. SPENCER PICKERING, at 3 o'clock, P.M.

LINNEAN SOCIETY.—The next meeting will be held on Thursday, March 16, at 8 o'clock, P.M., when the following papers will be read: Mr. P. CHALMERS MITCHELL, M.A., F.L.S., "On so-called Quintocubitalism in the Wing of Birds;" Mr. W. P. PYCRAFT, M.A., A.L.S., "Some Facts Concerning the So-called Aquintocubitalism of the Bird's Wing;" Messrs. W. WEST, F.L.S., and G. S. WEST, A.R.C.S., "A Further Contribution to the Freshwater Algæ of the West Indies."

THE ST. PETERSBURG EXHIBITION.—Through the intervention of the Royal Gardens, Kew, we have received a document from the Russian Government stating the conditions under which plants will be received at the forthcoming show in May next. 1. The transport of plants and other objects from the frontier to St. Petersburg will be made without any reduction in the tariff, but these goods will be exempt from customs duties, provided they are despatched from Russia through the same station as that by which they entered. 2. The transport of these goods from St. Petersburg to the frontier station through which they entered will be effected gratuitously. 3. To avoid all misunderstanding at the frontier, all goods intended for exhibition should be marked "Transit—Exposition," and bear a label, which will be furnished by the Imperial Horticultural Society to every exhibitor on application, one label for each package. 4. The customs examination will take place in the exhibition buildings. 5. All plants should be provided with a "Phylloxera Certificate." The Russian railway authorities undertake to provide several waggons adapted specially for the transport of plants, and provided with water for purposes of watering, and of heating. In the interests of the exhibition it is desirable that persons taking part in the exhibition should avail themselves of a reduction in the cost of the railway tickets, Signed "STAAL."

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* will take place on Tuesday, March 14, at 6 P.M. The subject for discussion will be, "The Planting and Pruning of Single Roses," to be introduced by Mr. GEORGE PAUL, V.M.H.

RAILWAY RATES.—We extract the following from the *Daily Mail*, and trust that a subject of such vital importance to cultivators who supply our markets will be vigorously taken up by those concerned:—

> The preference rates given by the South-Eastern and Chatham railways to foreign farmers are to be fought strenuously. Messrs. W. WOOD & SON are organising a vigorous attack.
>
> "The hour is now ripe for prompt and concerted action," write Messrs. W. WOOD & SON, Ltd., horticultural sundriesmen, of Wood Green. "The astounding comparisons between rates for foreign produce and those at present in force in the districts which are to be served by the South Eastern and Chatham railways should have the effect of rousing those to whom this is a matter of a struggle for existence, to take some steps to upset this monstrous anomaly."
>
> Messrs. WOOD & SON propose to call a public meeting at a convenient City centre. This meeting should be attended by every Englishman who desires to see, at the very least, the same treatment accorded to the British producer as is accorded to the foreigner by the South-Eastern and Chatham Ry. Companies.
>
> Messrs. WOOD & SON'S address is Wood-Green, London, N.; their telephone is "10 Tottenham." They are ready to assist in every way to fight this battle of home against foreigner, and they will be glad to hear from anyone and everyone willing to join with them.

TASMANIAN FRUIT.—Messrs. ANDERSON, ANDERSON & Co., of the Orient Steamship Co., inform us that they have received a telegram to the effect that the quantity of Apples shipped in the *Cuzco* is 11,000 cases, and in the *Britannia* 10,000 cases. This quantity includes Apples from Australian ports as well as from Hobart. Vendors here will appreciate the value of this communication. The *Cuzco* is due to arrive on April 1.

ADIANTUM × FARLEYENSE VAR. ALCICORNE.—*Apropos* of the illustration in last week's issue of this journal, RICHARD SMITH & Co., Worcester, write:—"We are pleased with the capital illustrations you give in to-day's *Gardeners' Chronicle* of Adiantum × Farleyense var. alcicorne, and with your remarks thereon, which we would supplement by saying that it originated here as a 'sport' nearly twenty years ago, and that it was very largely distributed by us at the time."

ANTON BARTIK, formerly head gardener to the Royal and Imperial Horticultural Society of Vienna, died, after a short illness, on January 8, in the sixty-second year of his age.

"THE AGRICULTURAL GAZETTE."—Our old ally, so long edited by the late JOHN CHALMERS MORTON, affords pleasing evidence of vitality. Not long since, it added a special department devoted to the interests of market gardening; and now its price is to be reduced to one penny. It is so ably conducted that we cannot doubt that the large measure of success which it deserves will be attained.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual general meeting of this Society will take place on Monday, March 13, at 8 P.M., at the Caledonian Hotel, Adelphi Terrace, Strand. Mr. JOHN FRASER, of the *Gardening World*, will preside on this occasion.

WELWITSCH'S PLANTS.—The third part of the catalogue of the African plants collected by Dr. FRIEDRICH WELWITSCH, prepared by Mr. HIERN, has lately been issued. It extends from the Dipsaceæ to the Scrophulariaceæ. Dr. WELWITSCH'S notes are of great interest, and Mr. HIERN'S known accuracy and thoroughness give ample guarantee that his share in the work is well done. We notice that the spelling, Willugbæya, is adopted in place of Willoughbya, and Elichrysum instead of Helichrysum. Compositæ and Asclepiadaceæ are largely represented, but Ericaceæ and some other orders very scantily.

FORTHCOMING HORTICULTURAL EXHIBITIONS IN BELGIUM.—We have before us the schedule of the Exposition Internationale d'Horticulture, organised by the Société Royale d'Horticulture et d'Agriculture of Antwerp, to be held from April 9 to 13. Also the programme de la Grande Exposition Internationale d'Horticulture, to be held at Mont St. Amand, Ghent, from April 30 to May 9. Both these exhibitions are likely to be on a large scale, judging from the number of sections included in the programmes and the awards offered. It is fortunate for intending exhibitors and visitors that the two shows are not to be held concurrently.

THE COLD IN AMERICA.—The *Florists' Exchange* records that in Chicago there was only one day in which the thermometer was above zero from January 27 to February 13; and for ten days the thermometer ranged from 10° to 21° below zero! At Cincinnati, during the same period, 8° to 30° below zero were chronicled; at Grand Rapids, Michigan, 10° below zero "seems to be the rule;" at St. Louis, the temperature on three occasions was 20° below zero; at Kalamazoo, the extreme temperature was 34° below zero.

"ORCHARD MANAGEMENT."—On the occasion of a meeting of the Bedfordshire Chamber of Agriculture on Saturday, February 25 last, at the Bedford Corn Exchange, a practical and interesting address by Mr. R. L. CASTLE, manager of the Duke of BEDFORD'S Fruit Farm, at Ridgemont, was read in his absence by H. T. EVE, Esq., the Hon. Sec. A lively discussion followed the reading of the paper, and a hearty vote of thanks was accorded Mr. CASTLE.

THE ROMAN FLORA.—Mr. DWIGHT BENTON is contributing to the *Roman World* a series of articles on the flora of Rome and its environs. The Campagna is not the desolate malaria-haunted region it is generally supposed to be. Its scanty population is the result of the system of hiring-out to the shepherd, and the tender of cattle, the privilege of wandering in freedom with their charges. Under a proper system of cultivation, half the grain required by Italy could be produced, whilst abundant water-power is at hand "to grind never a greater harvest." The first plants to make their appearance are the species of Romulea.

MR. BARR.—American and Canadian papers are much interested in the wanderings of Mr. BARR. Here is what a Canadian paper (London, Ontario) says:—"Mr. PETER BARR, a Victorian medallist in horticulture, of London, England, has been on a visit to the city during the past two days. Mr. BARR is making a tour of the world in search of knowledge and pleasure, and expects to return to England in 1902. He left Liverpool on April 5 last, and since that time he has been in the most important cities of the United States, from the Atlantic as far west as the Yellowstone Park. From London (Ont.) he goes to Arizona and California, and after spending a considerable time in each place, he will sail for Hawaii, Japan, China, Australia, New Zealand, and the Cape of Good Hope. 'And if Mr. RHODES has that railroad from the Cape to Cairo built by the time I reach the former,' said Mr. BARR, 'I will in all probability go that way home. If not, I will take the Nile trip at another time.'"

THE GUERNSEY GROWERS' GAZETTE, of which the first number is before us, is established to promote the interests of the Guernsey cultivators and to secure co-operation for the common benefit. The present number consists of trade advertisements only, but it is hoped shortly to introduce articles of general interest. From the energy and enterprise manifested in the island, we cannot doubt the success of this new venture; and if good wishes could ensure it, there would be no doubt as to the result.

"THE BOTANICAL GAZETTE."—The February number of this publication, issued by the University of Chicago, contains a paper on some new or little known N. American trees, by Prof. C. S. SARGENT, including Thrinax floridana, n. sp., T. Keyensis, n. sp., and T. microcarpa. Coccothrinax is a new genus split off from Thrinax, and including

T. argentea, T. radiata (T. gracilis, elegans and aurita of gardens). C. jucunda is the Thrinax parsiflora of Sargent Tenth Census Report, not of Swarz. C. Garberi replaces Thrinax Garberi. Serenoa arborescens, sp. n. These are all Florida Palms.

"Transactions of the English Arboricultural Society."—The last part contains the report of the annual meeting held at Penrith on August 17, together with an illustrated account of the excursion, in the course of which Messrs. Herds' nurseries were visited. On the second day, visits were paid to Eden Hall, the seat of Sir R. S. Musgrave, and Patterdale Hall, Hallstead. On the following day, Castle Rigg Manor, Armathwaite Hall, Mire House, at all of which places the plantations were inspected. Notes are also given of an excursion to Blagdon, the residence of the Right Hon. Sir M. W. Ridley, the Home Secretary. Practical papers include, "Remarks on the Measurement of Timber," "The Management of Plantations," "The Preparation of Bark," and "The Re-Afforesting of Palestine."

National Auricula and Primula Society.—The twenty-second annual report of the Southern Section of this Society lies before us. The exhibition held in the Drill Hall, James Street, Westminster, on Tuesday, April 26 last year, was, it is stated, considered a late one, and owing to the backward season, growers in the midland northern counties were unable to exhibit, and the exhibits of the Rev. F. D. Horner, Mr. P. J. Worsley, Mr. Simonite, Mr. Meaking, and others, were greatly missed. The show, however, was a success, exhibits being fairly numerous, and of good quality. A few new varieties were shown, and alpine Auriculas made, as usual, a brilliant display. The premier show Auricula, a fine example of Abbé Lizst, was shown by Mr. J. Sargent, and the premier alpine, Mrs. Martin R. Smith, having a gold-coloured eye, was shown by Mr. C. Phillips. The committee, with a view to encourage the cultivation of gold-laced Polyanthus, have added two classes to the schedule for these pretty flowers—one for three dissimilar varieties, and one for one variety. The committee draw attention to the desirability of an increase of membership, and tender their thanks to the members of the Horticultural Club, for the use of the club-room during the season. The twenty-third annual exhibition is to take place in the Drill Hall as heretofore, on Tuesday, April 18.

Cactaceæ.—Dr. Schumann, of the Royal Botanic Museum of Berlin, has published a monograph of the Cactaceæ under the title of *Gesamtbeschreibung der Kacteen* (Neudamm: J. Neumann; Williams & Norgate). It consists of a full description of the Natural Order, with illustrations of its chief peculiarities. The several genera are treated in the same manner, together with artificial keys. All this is in German; but in the case of the species, a short Latin diagnosis is given, for which non-Germans will be specially grateful. It is singular to see how in half-a-dozen lines of Latin information may be given that which would necessitate double the number of German words for its exposition. The relative disuse of Latin by German naturalists is a real misfortune to botanists. One hundred and four species of Cereus are described, thirty-two of Pilocereus, fifteen of Phylocactus, one only of Epiphyllum, eighteen of Echinopsis. Of Echinocereus, thirty-nine species are recorded. One hundred and thirty-eight species of Echinocactus are enumerated, and reference is made to their literature and iconography. It is a pity that no reference is made to the excellent illustrations which appeared in these columns of species of this genus. Of Melocactus, fourteen species are enumerated, but only one of Leuchtenbergia; ninety-nine species of Mamillaria are described, and forty-seven of Rhipsales. No fewer than one hundred and thirty-one species of Opuntia are monographed. The remaining genera consist of but few species. Mr. Hirscht contributes a chapter on the cultivation and propagation of these plants, together with an account of the insects which attack them, and the means of dealing with them. A good index concludes the work, which no lover of Cactaceæ who can read German can afford to do without.

Stock-Taking: February.—The terrible weather during the whole of the past month has doubtless had much to do with the falling-off in the imports, as recorded in the Board of Trade Returns for February. Seldom has there been such a record of wrecks, with loss of life; and as we are the largest carriers upon the sea, so are we the principal losers. The returns of imports show a deficit of £184,180. The figures are £35,586,694 for last month, against £35,770,874 in February of last year. The decrease in dutiable provisions is £137,997; articles of food and drink, duty free, show an increase of £299,924—this, in face of the fact that the price of Wheat is down 10*s*. 2*d*. per quarter; Barley, 1*s*. 5*d*.; and Oats, 11*d*. Our usual summary extract is as follows:—

Imports.	1898.	1899.	Difference.
	£	£	£
Total value ...	35,770,874	35,586,694	—184,180
(A.) Articles of food and drink — duty free	11,615,507	11,915,431	+299,924
(B.) Articles of food & drink—dutiable	1,959,202	1,821,205	—137,997
Raw materials for textile manufactures	7,223,664	6,276,019	—947,645
Raw materials for sundry industries and manufactures	2,680,854	2,926,154	+245,300
(A.) Miscellaneous articles	1,226,896	1,312,992	+86,196
(B.) Parcel Post ...	139,180	95,027	—44,153

We may note an increase in the value of sugar imports of over a quarter of a million sterling, as compared with February, 1898. The two months' imports show an advance of £1,103,135, as against the same period last year. We come now to—

FRUIT AND VEGETABLES,

our comparative figures being as follows:—

Imports.		1898.	1899.	Difference.
Fruits, raw:—				
Apples ...	... bush.	176,736	308,225	+131,489
Grapes ...	... ,,	795	1,859	+1,064
Lemons ...	... ,,	...	...	...
Oranges ...	... ,,	1,368,398	1,272,695	—95,703
Pears ...	... ,,	2,782	2,868	+86
Plums ...	... ,,	775	439	—336
Unenumerated ...	,,	49,221	53,636	+4,415
Onions ...	... ,,	362,263	569,654	+207,391
Potatos ...	... cwt.	532,843	62,787	—470,056
Vegetables, raw, unenumerated ...	... value	£71,571	£92,753	+£21,182

The plus figures are well worth study. Notable, also, is the quick reply of the market to what has been placed upon it. We fancy that our friends at the Antipodes are this season "selecting" their export fruits with care. Growers probably found this the most profitable course to follow; certainly the average quality has been improving of late years. Coming now to—

EXPORTS,

we note with pleasure that they have increased, as against February in last year, by £1,740,557, the figures being, last month, £19,382,406; February, 1898, £17,641,149. The increase is led off by £553,533 in raw materials; £361,825 in machinery and mill-work—still making up for losses in the great strike. Metals, and articles manufactured therefrom (excepting ships and machinery), have gone up by £221,614; yarns, &c., increased by £105,605; and the section, "all other articles, either manufactured or partly manufactured," shows an increase of £188,270; chemicals, &c., increased by £53,138; apparel, &c., £48,911; and parcel-post, £30,291. Taken altogether, these returns may be considered to be satisfactory and promising. The value of the exports for the two months is £39,729,640, against £36,873,253 in February, 1898—a gain of £2,856,387.

Artificial "Natural" Flowers.—Some Londoners are encouraging the lavish use of flowers for funerals, that we have, until lately, been more accustomed to associate rather with foreign or American capitals than with our own. The idea just now, judging by a stroll past the principal florists of the West End, seems to be to employ for such a purpose as many flowers as can possibly be crammed together, to the destruction of the individual beauty of them all, and the artistic effect of the whole. Artificial blossoms, indeed, would be quite as successful in appearance. To so great an extent is this fad carried, that one kind of flower is not infrequently flattened out, and a second pinned down in the middle of it. For example, every violet that was used in a certain "set piece" of this kind, lately, had a single Lily of the Valley thus added! The background of the crosses, harps, and books that are so modelled, as it were, in flowers, often consists of white stocks, deprived of their stems, and so closely packed together that no foundation is visible between them. On the page of one open book was displayed a text carried out with single pips of scarlet Pelargoniums. Not satisfied with this, the florist had arranged across it a book-marker of broad heliotrope ribbon, veiled with sprays of Asparagus, and what was apparently white heather. After the sight of so much artificiality and bad taste, it was a relief to turn to another shop window, in which were placed boxes full of beautiful crimson Roses, unwired and untortured in any way, and looking as fresh as if they had only that moment left the tree. They had been provided with no foliage except their own, and called forth the undisguised admiration of every passer-by.

"Advertising."—This is the name of a monthly publication, issued by Smith's Advertising Agency, 132, Fleet Street, as a guide to those business men who are desirous of advertising successfully and effectively. In the February number an attempt is made to suppress fraudulent dealings by giving a list of "genuine advertising media," which has been compiled with the assistance of the proprietors of the principal journals and magazines. Additions to this list will be made in subsequent issues.

An Exhibition of Drawings for Fountains and Vases.—A small exhibition is now open at the Dutch Gallery, 14, Brook Street, Hanover Square, of drawings of fountains, figures, vases, and balustrades, suitable for the decoration of gardens. Many of these are the production of M. Alphonse Legros, and are carried out in silver point, crayon, sepia, and water colours. Although the drawings themselves are very skilfully executed, there is nothing strikingly original in the many groups of children, masks, and dolphins, that are specially intended for fountains. Two studies of horses, probably inspired by some classic frieze, are full of life and energy, and are to be carried out in relief. The Countess Feodora Gleichen gives several proofs that she is at least as skilful in this branch of art, as in others, with her work in which we are more familiar. She contributes some charming designs for fountains, among them being one representing a graceful female figure coming down some steps, over which water is flowing, and bearing a pitcher on her shoulder. At the base are groups of children toying with dolphins. Another drawing by the same artist shows a garden terrace, with a short flight of low steps, widening out at the bottom. These are finished with balustrades in a pleasing classical design of rams' heads, and floral swags disposed alternately. Sculpture is not fully represented, but one of the most striking examples, by M. LEGROS, is a mask forming a portion of the base of a fountain, destined for the gardens of Welbeck Abbey. It is scarcely fair to judge such drawings as those in this exhibition, for the result would be so very different when they are reproduced in the stone or plaster for which they are intended. The apparently coarse physiognomy of some of the children, in particular, would then be softened, and the rounded surface would contribute grace to the design.

THE NURSERY AND SEED TRADE ASSOCIATION, LIMITED.—The objects of this Society are to protect and promote the trade and business of nurserymen, florists, and seedsmen, in the United Kingdom and abroad; to collect and disseminate information calculated to protect the members of the Association (as nurserymen, florists, and seedsmen, and others interested in horticulture) from fraud; to arrange for the speedy and economical collection of debts due to members. The establishment of unity amongst those interested in the welfare of the nursery and seed trades is aimed at. The interchange of opinions on questions of importance relating to such trades is also promoted. The doing of all such things as may be incidental or conducive to the attainment of the above objects, and all such objects as may from time to time be determined by the Association is the object of the Association. Investigating matters in bankruptcy, and attending meetings of creditors on behalf of its members; making trade enquiries and giving information generally useful to its members are also within the Association's purview. Debts are collected at a commission of 5 per cent. on amounts not exceeding £20, and 2½ per cent. on amounts exceeding £20.

The special benefits obtained from being a member of this association (not given by ordinary trade protection societies), are that it is confined to the nursery and seed trade and the trades allied therewith; its members agree to give to each other, through the secretary, mutual private information as to the financial position, and character of purchasers, and the extent of credit which may be safely given to old or intending customers. If information cannot be obtained from the recordsof the Association or its members, special inquiries are made in the districts where the customers reside; 1813 special inquiries were made during the last three years at the expense of the Association. Advice and assistance is given to members, through the solicitor, in reference to disputes and liabilities which arise out of the sale of seeds and plants, rating of nurseries, punishment of persons adulterating seeds and fraudulently obtaining goods, and questions affecting landlords and tenants and the trades generally. The subscription for members resident in the United Kingdom is £1 1*s.* per annum. For members abroad £2 2*s.* per annum; commencing on January 1 or July 1. Mr. J. P. WORRELL, 30, Wood Street, Cheapside, London, is the Secretary.

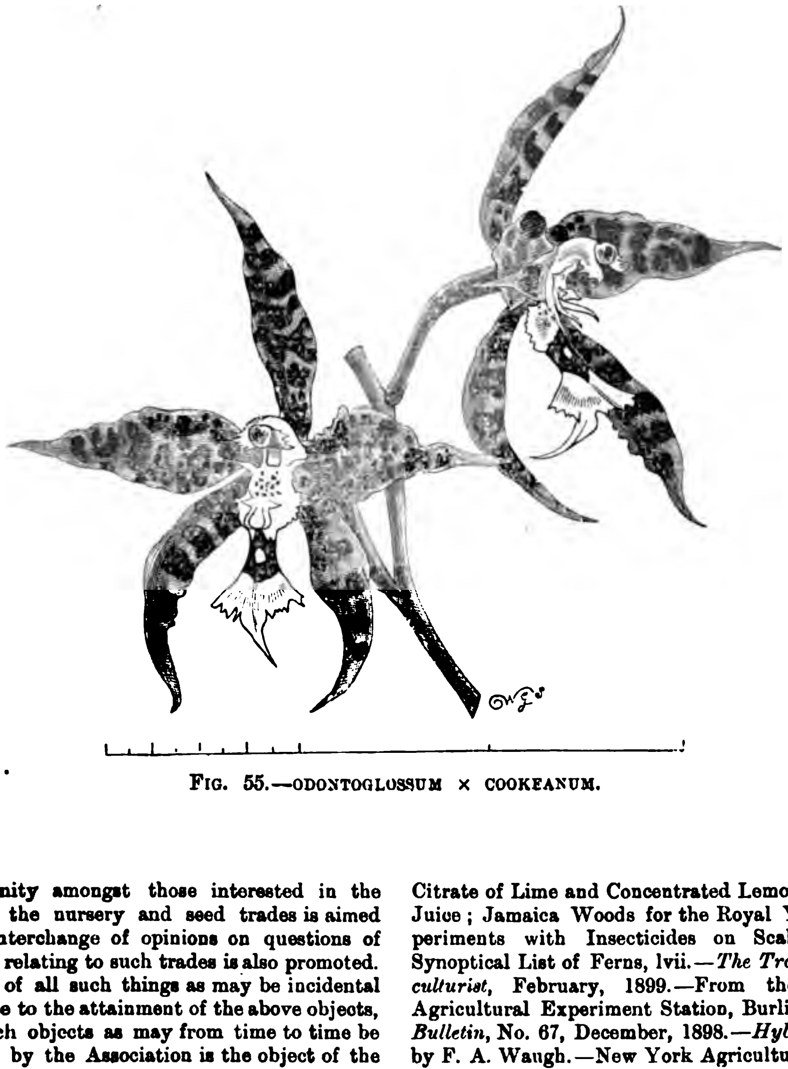


FIG. 55.—ODONTOGLOSSUM × COOKEANUM.

PUBLICATIONS RECEIVED.—*The English Illustrated Magazine*, March.—*Bulletin of the Botanical Department, Jamaica*, December, 1898. Contents Citrate of Lime and Concentrated Lemon and Lime Juice; Jamaica Woods for the Royal Yacht; Experiments with Insecticides on Scale Insects; Synoptical List of Ferns, lvii.—*The Tropical Agriculturist*, February, 1899.—From the Vermont Agricultural Experiment Station, Burlington, Vt., *Bulletin*, No. 67, December, 1898.—*Hybrid Plums*, by F. A. Waugh.—New York Agricultural Experiment Station, Geneva, N.Y., *Bulletin*, No. 146, November, 1898; *Some Experiments in Forcing Head Lettuce*, S. A. Beach; and *Bulletin* 147, December, 1898, *Variety Tests of Strawberries, Raspberries, and Blackberries*, Wendell Paddock.—*Annales Agronomiques*, February 25. Including papers on: La baisse des prix et la crise agricole; Observations sur la dosage de l'azote, par le procédé Kjeldahl, par MM. Maquenne et Roux; Influence des pluies et de la nature des terres sur le rendement des fourrages, par M. Pagnoul; and notice, sur les travaux de M. G. L. Prosper Demontzey, par M. Emile Mer.—*Annual Report, List of Members, &c., of the National Dahlia Society*, 1899.—*Nature Notes*, March.

ODONTOGLOSSUM × COOKEANUM.

THOUGH not one of the showiest of Odontoglossums, the blossoms of this natural hybrid are attractive, and the plant is floriferous. It is, moreover, a rarity, and but few have yet appeared out of the importations of Odontoglossum triumphans which, with Odontoglossum gloriosum, are the species whose natural intercrossing when growing together has resulted in this hybrid. An excellent example, from which our illustration was taken (fig. 55), was shown by Baron Sir H. Schroder, The Dell, Staines (gr., Mr. H. Ballantine), at the Royal Horticultural Society, on February 28, an Award of Merit being secured for it. The flowers are yellow, blotched with reddish-brown, the blade of the lip being creamy-white.

NOTICES OF BOOKS.

BUSH FRUITS. By F. W. Card.

THIS is a work which treats upon a comprehensive variety of bush fruits, as cultivated under the climatic conditions of the United States, but, in our opinion, it contains but little matter of any practical value to the British fruit grower; at all events, our own experience with those numerous varieties we have given honest fair trial to from time to time has been, to say the least of it, very disappointing. Our treatment has certainly been at variance with that recommended, and which we are very sceptical about, for the author tells us at p. 346, that "Gooseberries and Currants succeed especially well with mulching. Any refuse material, like straw, wild grass, weeds, or even coal-ashes may be used."

We should be sorry to use coal-ashes on our land in any form.

Again, p. 373, one of the remedies suggested for mildew is a mulching of manure, stone, tin cans, or old boots; we certainly shall not experiment with the tin cans, nor old boots either. "Vigorous pruning is recommended for Gooseberries that are to be picked green." There, again, our notions are antagonistic, our method has hitherto been to prune less for this crop than the other trees which are left to ripen their crop, and we have also found it advantageous to go over the trees immediately the crop was gathered, removing the thin and exhausted spray wood, with a view of admitting light and warmth to ripen the newly-formed wood left for next season's supply.

A "Planet Gem Cultivator" is also said to be the best fertiliser. This is stated in a chapter headed "Raspberry Cultivation," which makes us again sceptical, seeing what a surface-rooter the Raspberry is in this country.

Elaborate botanical descriptive lists of the most approved respective kinds of berried fruits are furnished. Insect pests are described and methods given how best to control them.

Concerning the evaporating, drying, and canning of bush fruits there is a vast amount of sound, useful information, but at the present time chiefly applicable to the States' fruit growers. To sum up, the entire book is, to our mind, much more technical than practical to the ordinary British fruit grower. *W. C. M.*

WOOD AND GARDEN.*

"I think there are but few things so interesting as to see in what way a person whose perception we think fine and worthy of study will give them expression in a garden." p. 279.

Some of us have looked upon the lady-gardener as being in some sort a modern innovation, but in reality she has an ancestry dating from the days of Eden. Even the manual labour of the garden was performed by female hands in early times, just as it is to-day in many little-known lands between ourselves and the equator. All through mediæval times the gardens of castle or of moated grange alike depended mainly on the able lady-gardeners of the period, who now and then did splendid architectural work as well, of which the beautiful example at Hardwick, erected by Elizabeth of Shrewsbury, must now serve as illustration.

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* *Wood and Garden:* Notes and Thoughts, Practical and Critical, of a Working Amateur, by Gertrude Jekyll. Illustrated from photographs by the author. 8vo, pp. 286, with index (London: Longmans, Green & Co., 39, Paternoster Row, E.C.).

Men in early times did the fighting and hunting, and even the writing or compiling of books on gardening was, as a rule, done by them also in the sixteenth, seventeenth, and eighteenth centuries; but we are glad to say that the modern lady gardeners are writing books on the craft themselves. To woman's taste and influence, even though aided by manly labour, is due much, even if not most, of the best gardening of our time. Good and gentle gardeners at heart, it is very pleasant to see that they are taking up the pen as well as the spade and pruning-hook, so as to give us precepts as to how our gardens may be made satisfying, or in other words more economically useful, more exquisitely beautiful than man has already caused them to be. During the past few years we have had quite a little library of gardening books by ladies added to our shelves. Amongst many others there are *Days and Hours in a Garden*, by E. V. B. (Hon. Mrs. E. V. Boyle); and *Gardens and Woodlands*, by the late Miss F. J. Hope, of Wardie, Edinburgh; then there is *Pot-Pourri from a Surrey Garden*, by Mrs. Earle, exceedingly interesting from the broadly human, as well as the special gardening, point of view; and now this charming *Wood and Garden* comes upon us as fresh and as welcome as a summer's shower. Like the last-named work, too, this one deals with beautiful Surrey, with its flowery lanes and Heath and Juniper-clad commons, its pretty cottage and roadside gardens, and the flowers, which seem to be most happy there.

Miss Jekyll is well known to many of our readers as having long been a practical artist gardener, and her art was nothing to her if it could not be used to elevate and ennoble homely things. One of her first phases of teaching was that which led some of us to try and plant our herbaceous borders so as to obtain floral and leaf-beauty for at least most part of the year. Then again she led us to mass or group our colours, so that they helped each other, avoiding the jarring note and the dotting of all sorts of tints over the same area. Again, in the choice and use of cut flowers, our authoress has been essentially helpful, and a series of simple flower-glasses she designed have been very generally used in both town and country houses, and their use alone has led to a more simple, natural, and more enduring manner of using beautiful blossoms and leafage indoors.

Like all really good gardeners, Miss Jekyll has a firm and clear idea of what she likes best, and of how much of it she wishes to employ, in simple accordance with the effect desirable of attainment. On nearly every page of the book before us the reader is clearly shown that one may possess in plenty the best of plants, on the best of soils, and give all the advantages of good culture, and yet fail in having a pleasing and enjoyable garden.

The plants represent, let us say, form and colour; the garden itself is the palette and canvas combined. The summation of the artist's ideal depends on how they are grouped, or mixed, or arranged; for to the trained eye, unless there is what is called feeling or drawing in the arrangement, much, or even all effect is lost.

In other words, as Miss Jekyll herself tells us at p. 157, "It is not the paint that makes the picture, but the brain, and heart, and hand, of the man who uses it."

Again (p. 70), she says:—"I always think it desirable to group together flowers that bloom at the same time. It is impossible, and even undesirable to have a garden in blossom all over, and groups of flower beauty are all the more enjoyable for being more or less isolated by stretches of intervening greenery."

Again, the following extracts tell their own tale, and will give the reader interested a far better and higher notion of the book itself than any words of mine could do:—

"In the following chapters I have laid special stress upon gardening for beautiful effect . . . . I am strongly for treating garden and wooded ground in a pictorial way mainly with large effects, and in the second place, with lesser beautiful incidents, and for so arranging plants, trees, and grassy spaces, that they look happy and at home, and make no parade of conscious effort.

"I try for beauty and harmony everywhere, and especially for harmony of colour. A garden so treated gives the delightful feeling of repose and refreshment, and purest enjoyment of beauty . . . . For I hold that the best purpose of a garden is to give delight, and to give refreshment of mind, to soothe, to refine, and to lift up the heart in a spirit of praise and thankfulness."

1. The lesson I have thoroughly learnt, and wish to pass on to others, is to know the enduring happiness that the love of a garden gives.

2. "The love of gardening is a seed, that, once sown never dies, but always grows, and grows to an enduring and ever increasing source of happiness."

3. The conditions of different gardens vary so greatly, even when soil and situation appear to be alike, and they are in the same district. Nature is such a subtle chemist, that one never knows what she is about, or what surprises she may have in store for us.

On pp. 14 and 15 we are told of the finding of the white Iris stylosa by the Rev. Edwyn Arkwright twenty-five years ago or so at a place called "El Sahel," about five miles from Algiers, where it grew amongst scrub of Myrtle, Cistus, and dwarf Oaks, &c. Mr. Arkwright dug up the one plant and put it into his garden, where Durando saw it and took off his hat to the lonely flower!

Of the late Mr. Webb's Nut-tree nursery at Calcot, near Reading, a bright little sketch in words is given on p. 11. The place was secluded by a wall, and one had to wait, as at a monastery, until someone answered the deep-toned bell. Then the great mastiffs barked, and the quaint owner appeared, and our authoress saw the rows and clumps of great Nut-bushes, and the pale double Cernuus Daffodils and Polyanthus, at that time so remarkable there; a delightful old-world tone hung over the place, and as Miss Jekyll says, "It was the only nursery I ever saw where one would expect to see fairies on a summer's night." Now and then we are told that the best arrangements are the natural ones, "over the garden wall," so to say, as on p. 154. "Near my home is a little wild valley, whose planting, wholly done by Nature, I have all my life regarded with the most reverent admiration."

And again, on p. 156:—"No artificial planting can ever equal that of Nature, but one may learn from it the great lesson of moderation and reserve, of simplicity of intention and directness of purpose, and the inestimable value of the quality called 'breadth' in painting. For planting ground is painting a landscape with living things; and as I hold that good gardening takes rank within the bounds of the fine arts, so I hold that to plant well needs an artist of no mean capacity. And his difficulties are not slight ones, for his living picture must be right from all points and in all lights."

P. 176, as to the size of gardens, we are told:—"I do not envy the owners of very large gardens. The garden should fit its master, or his tastes, just as his clothes do; it should be neither too large nor too small."

P. 177:—"Nothing is more satisfactory than to see the well-designed and well-organised garden of the large country-house, whose master loves his garden and has good taste, and a reasonable amount of leisure."

P. 60, May, music in the wood:—"The song of the nightingale, and the ring of the woodman's axe, gain a rich musical quality from the great Fir-wood. Why a wood of Scotch Fir has this wonderful property of a kind of musical reverberation I do not know, but so it is; any sound that occurs within it is, on a lesser scale, like a sound in a cathedral. The tree itself when struck gives a musical note. Strike an Oak or an Elm on the trunk with a stick, and the sound is mute; strike a Scotch Fir, and it is a note of music."

P. 176, Then of the clergyman as a gardener:—"The conditions of the life of a parish priest would tend to make him a good gardener, for while other men roam about, he stays mostly at home, and to live with one's garden is one of the best ways to ensure its welfare. And then, among the many anxieties, and vexations, and disappointments that must needs grieve the heart of the pastor of his people, his garden, with its wholesome labour, and all its lessons of patience, and trust, and hopefulness, and its comforting power of solace, must be one of the best of medicines for the healing of his often sorrowing soul."

P. 73:—Rhododendrons and Tree Pæonies are especial favourites of our authoress, who, like many others, regrets that they are so often sold grafted on common stocks, that prove a source of trouble instead of being established on their own roots. With regard to the Tree or Moutan Pæony she writes:—

"It is a matter of regret that varieties of the better kinds of Moutan are not generally grown on their own roots, and still more so that the stock in common use should not even be the typical Tree Pæony, but one of the herbaceous kinds, so that we have plants of a hard-wooded shrub worked on a thing as soft as a Dahlia-root. This is probably why they are so difficult to establish, and so slow to grow. . . . Every now and then, just before blooming time, a plant goes off all at once, smitten with sudden death."

Of perfume, p. 234:—"Perhaps the most delightful of all flower scents are those whose tender and delicate quality make one wish for just a little more. Such a scent is that of Apple-blossom, and of some small Pansies, and of the wild Roses, and the Honeysuckle."

Page 236:—"But of all the sweet scents of bush or flower, the ones that give me the greatest pleasure are those of the aromatic class, where they seem to have a wholesome resinous or balsamic base, with a delicate perfume added. When I pick and crush in my hand a twig of Bay, or brush against a bush of Rosemary, or tread upon a tuft of Thyme, or pass through incense-laden brakes of Cistus, I feel that here is all that is best, and purest, and most refined, and nearest to poetry in the range of faculty of the sense of smell."

The book is well printed, on good paper, and consists of 286 pages with index, and 60 or 70 illustrations from photographs taken by Miss Jekyll herself, and many of them are very beautiful, special justice being done to the native Juniper, and to the Birch-trees, Rhododendrons, and hardy flowers, both in the borders and wild garden. The views of Clematis and Roses, &c., over the arched doorways and pergola are charming; and "The Woodman," at p. 159 is quite a picture in its way, as also is the frontispiece of Iris near doorway, and the Giant Lily, p. 96, with the Savonarola-like figure gazing up at their great white bells.

Miss Jekyll's book is so fresh and good, so welcome and enjoyable, that it certainly ought to find a welcome wherever gardening is appreciated, and we hope a second edition will afford the fair authoress an opportunity of correcting and amending the few errors and misprints it contains, such as Corchorus for Kerria on p. 50; Amelancheir for Amelanchier on p. 52; families for genera on p. 53. Again, we are told that the Carnation was made the subject of a whole chapter in Parkinson's *Paradisus Terrestris*, "a distinction shared by no other flower;" but we always thought that the same distinction was conferred by that dear and genial old gardener on the Narcissus, the

Tulip, to say nothing of the Fritillary, and the Rose.

The arrangement of the book is calendarial, a chatty article on the flowers and shrubs and trees being devoted to each month of the year. There is also a pleasant introduction and special chapters on the Primrose Garden, Colours of Flowers; the Scents of the Garden; the Worship of False Gods; Novelty and Variety; Weeds and Pests; the Bedding Fashion and its Influence; and a very potent and suggestive article on "Masters and Men," one-sided though it be, for there are narrow-minded, and so far as gardening goes, very ignorant masters as well as men. *F. W. Burbidge.*

HOME CORRESPONDENCE.

WHAT CONSTITUTES ODONTOGLOSSUM WILCKEANUM.—As Mr. Rolfe "quite disposes" of most of my remarks hereon, by reciting his phrase anent the "Golden Queen," viz., "it is quite possible that it is a form of the variable O. Wilckeanum, &c."; for a definite statement that Golden Queen is a Wilckeanum I am pleased, and here the discussion ends. Henceforth it ranks as O. Wilckeanum Golden Queen, and one of the most beautiful varieties of this handsome hybrid. I can pass over his interpreting my letter as "bad taste;" and as to the words "strictly true,"—well, perhaps, he might have used others, though I do not take them in any sense "personal or offensive." Far from forgetting his article on O. Wilckeanum (*O. R.*, July 1893, pp. 201 to 204), I was astonished in 1897 at his remarks upon O. Wilckeanum Golden Queen, for in 1893 he had laid down precedent enough to include it "definitely," but his remarks implied (to me) that he thought he may have gone too wide in 1893, and felt it needful to draw in a little closer. Now we are agreed. Mr. Rolfe has "no desire to dogmatise." I do not call it dogmatising, to have as definite a standpoint in a crispum as in a luteo-purpureum. This latter is, in all its forms, a more constant species than crispum, or what has been included under crispum, up to the present time. If we take the two extremes of crispum and luteo-purpureum, laying down clear definitions for the true species, we shall then be able to travel inwards from the two species to the midway hybrid, viz., an O. Wilckeanum, having equal shares in the characters of both parents, such as O. Wilckeanum var. Leroyanum, the first Odontoglossum that bloomed from seedlings raised in Europe, its description is roughly, sepals white, the brown of luteo-purpureum, broken into the usual three bar-blotches of Wilckeanum, petals ditto, having the large outer blotch and two inner large spots, these two being placed one above the other. The lip is almost entirely covered with reddish-brown, of which colour are the markings of the sepals and petals. In form, shape, and colour, this variety is fairly intermediate. I think if Reichenbach had been more dogmatic, Mr. Rolfe and I would have had nothing to discuss. In reply to his request for home-raised hybrids, I think he must have forgotten that I have been, and am doing, all I can to clear up this matter, and if he, or anyone, will tell me how to germinate the seeds in greater quantity, it will take but a very short time to set it all at rest once and for ever. Why can not a great national establishment like Kew Gardens render all orchidists a great help by having a scientific collection of Orchids, and work them out botanically? [It has. Ed.] *De B. Crawshay, Feb.* 27.

WINTER ACONITE.—I should like to add my contribution, which, though not in harmony with what others have said about the Winter Aconite, is, I am quite sure, perfectly accurate. When I was a boy I passed a great deal of my time in the East Riding of Yorkshire, and the rectory garden of Hotham, near Market Weighton, was, and is still, the home of my affections. An uncle, who passed all his life of considerably more than 80 years there, and his father before him, who exceeded 90 years in the same spot, were alike devoted to their garden, and Winter Aconites were held in the highest estimation, and suffered to grow wild. They covered every inch of soil in the large shrubberies on either side of the garden; they used to run over into the kitchen garden, from which they should have been constantly expelled. They were to be found here and there in the borders of the flower garden, and a small paddock was invaded by them without any restriction being made. I have never seen such a profusion of Winter Aconites anywhere else, and though I know that the whole place has gone to wrack and ruin since the period to which I refer, I feel certain that if any of your readers are at all near Hotham Gardens in the East Riding of Yorkshire, they would find there still myriads of these Winter Aconites, for they never can, by any possibility, be exterminated after the strong hold they were allowed to get upon the place. Now, my point, after all this long story, is the following:—Mr. Stillingfleet has over and over again said to me in the last day of the year, "I always expect to find an Aconite in blossom before the old year is out, and I am seldom disappointed in my search." There was something like a superstition about it, and things were always supposed to be going very wrong if no specimen was found. In remembrance of this, I always expect my Aconites in the Isle of Wight to give me a blossom or two *on the last day* of the year; at any rate, I never fail to look for them, and now and then I am rewarded with success. But the case at Ryde is vastly different from what I remember at Hotham. I can only afford to have a patch here and there on account of want of room, and though the climate fights for me, and does it well, it is in early January and not in December at all that the first blossom generally appears. The outcome of it, so far as Winter Aconites are concerned, is the following:—If it be a great point to have them soon, or rather, I should say, very late in the year, it is everything to grow these plants in multitude, to leave them quite alone, to let them get well hold of the ground, and then I should think that in other parts of England besides the cold and bleak East Riding of Yorkshire, the dates which some of your correspondents have given for their appearance will be left far behind, and whether the preceding summer has been hot or cold, dry or wet, Winter Aconites will be quite true to their name if December 31st is a winter day. *Henry Ewbank.*

BEGONIA GLOIRE DE LORRAINE.—In the interesting notes that have lately appeared in connection with this hybrid, it seems to be generally admitted that female flowers are produced, although generally not more than two or three are to be found upon a plant. In 1897 one plant was bought here, and last year a number of plants was raised from it, two or three of which have always produced female flowers in considerable numbers. On one there were counted twenty-four, on another eight capsules. These two plants are those in the front of the photograph which I send you, and it will be noticed the great difference in the habit of these plants, being more compact and their flowers produced on much shorter inflorescences, on each of which inflorescence may be counted two or three female flowers. The plant at the back represents the ordinary type of growth in this plant, and on none of these are found more than two female flowers, and many are without them altogether. Seeds saved in 1897 were sown, but none germinated, and this year I have sown seed which is supposed to be cross-fertilised, but no sign of germination has yet been observed. Examined under the microscope, the pollen grains present a very empty appearance, compared with other species and varieties more readily fertilised, although they are found in good numbers. *R. L. Harrow, Edinburgh.*

PRUNING SHRUBS.—How greatly I agree with the protest made in your leader of Saturday last against the too common barbarous practice of pruning, so called, but really clipping of all shrubs, no matter what, into round headed forms all alike, all wretchedly formal. It is the practice here in Kingston, on our otherwise charming promenades and recreation grounds, and protesting seems to be of no use whatever. It is a case literally of uselessly striving to make silk purses. There is no taste, natural or artificial, and the public from lack of better knowledge, seem to regard the practice as the right thing. Except on a hedge, where their use may be sometimes tolerable but not always, shears should never be allowed to touch a shrub; a good sharp knife is the proper instrument, and its use judiciously always enables shrubs to be kept within bounds and yet to retain their natural forms. I have no doubt, those who shear shrubs in the offensive way referred to, excuse the practice on the ground of want of time to prune with a knife. But in the case of shearing, the process must be done annually, whilst with many shrubs knife pruning need be performed but once in two years. It is most exasperating to any one endowed with natural tastes to walk along our promenades and see thousands of otherwise fine shrubs hard-trimmed to one rigid form or outline. It is something so obnoxious that it would never be tolerated in any good private garden. Much of the planting at the outset was bad, coarse growing and dwarf-habited shrubs being mixed up indiscriminately, and now the shears are applied to make the stronger ones to be in unison with the growth of the others. *A. D.*

MARÉCHAL NIEL ROSE.—In reply to correspondents you say of this rose, "a stock which would grow as fast as this Rose, is what is wanted;" that is to prevent the gouty formation of bark or cambium at the union, because the stock is incapable of passing it rootwards. Why do nurserymen persist in budding on to Briar and Manetti stocks, when they could work from cuttings Madame Berard, Gloire de Dijon, or other very free growing variety, and use those as stocks. Better still if pains be taken to work these on to the Briar-stock, then rebud into the strong growing Rose. I adopted that plan of double working at Bedfont years ago, including also for secondary stocks Marie Henriette and Lamarque Versailles, both strong growers, and was never troubled with gouty swellings. On a direct Briar-worked plant, the scion-stem became inordinately swollen. *A. D.* [Now is the time to obtain and plant the strong growing Roses that our correspondent names, and others of equal or stronger growth, as for example the Ayrshire Rambler, Crimson Rambler, and others of that sort, which make strong, long shoots, and grow well on their own roots. Ed.]

MR. BENNETT'S STRAWBERRIES.—Is it not probable that the odd or contradictory action of Royal Sovereign and Noble Strawberry plants, when forced this season, mentioned by Mr. Bennett, is due to the diverse action upon them of so hot and dry a season as was that of last year. It would be inferred from the unwonted earliness of Royal Sovereign this season that it was more capable than Noble, with its broad leathery leaves, of withstanding great heat and drought, hence it has produced stronger or at least more quickly matured crowns. Then Royal Sovereign may have similar capacity to throw runners earlier under such conditions as existed last year than Noble. No doubt when plants of diverse varieties, treated alike in all respects in pots and forced alike, show as a rule infinitessimal flowering differences; but that one should fruit three weeks before the other is remarkable. *A. D.*

SUBURBAN GARDENS.—The following may be useful as addenda to the interesting remarks on "Suburban Gardens," p. 113. Evelyn twice mentions the Orange trees at Bedington, the second time in 1700, when he states they "were now in decay." At this period they were neglected. Their age is mentioned as 120 years. The Caper-bush (Capparis spinosa) at Cambden House, had also a history. Miller refers to it as "an old plant growing out of a wall in the gardens, which has resisted the cold for many years, and annually produces many flowers, but the young shoots are frequently killed to the stump every winter." (!) A strange experience if we accept the statement literally. Queen Anne's work at Kensington Gardens is thus described by Switzer (Ichnographia Rustica, vol. i.). "Her first works were the rooting-up of the Box, and giving an English model to the old made gardens at Kensington; and in 1704 made that new garden behind the greenhouse, which is esteem'd amongst the most valuable pieces of work that has been done anywhere. The place where that beautiful hollow now is was a large irregular gravel-pit, which according to several designs given in was to have been fill'd; but that Mr. Wise prevail'd, and has given it that surprising model it now appears in." Wise succeeded Rose as royal gardener, and is perhaps now best known as a partner of the great nursery firm of London & Wise, at Brompton. *R. P. B.*

THE DROPMORE CEDAR AVENUE.—The illustration of this avenue (fig. 52, in last issue), recalls an interesting conversation I once had with that clever old gardener whose name is so intimately associated with Dropmore—Philip Frost. We were standing by the famous Dropmore Douglas Fir, and he was describing in his unctuous manner how, after a visit to Kew, he brought, in his waistcoat pocket, the cutting from which it was raised. I asked him how he came to plant this tree on such an elevated mound. He gave me one of his comical looks, and replied in his favourite curt fashion, "The mound wasn't there when I planted the tree." I saw he wanted to give an explanation of this paradox in his own way, so I humoured him by putting on an air of contradictory incredulity, which was rewarded by a graphic account that would occupy too much space to repeat verbatim. I will therefore give the results of what he told me. Many years ago his mistress, Lady Grenville, anxious to give her husband a pleasant surprise on his return from the Continent, determined, during his absence, to much enlarge his lordship's favourite fish-pond. Frost was told to set about the work and get it done, and in carrying out the order came upon a bed of marl of such value that he determined to carefully save it up for use in the kitchen garden. He was for a time at his wits' end to know where to store it, for there were many hundreds of loads. At last he fixed upon a large space behind the Cedars in the avenue; and there it remained for two or three years undisturbed. When at length he wanted a supply for the garden, he found the marl full of healthy young roots, which he soon satisfied himself were roots of the Cedars. This set him thinking, and led him to begin, tentatively, top dressing some of his conifers with marl, among them the Douglas Fir. A very dry summer following caused him to bring the fire-engine into use to pump water from the fish-pond to saturate the ground about this and other trees. Rapid growth resulting from this treatment, he from time to time repeated it, until, he told me, he put altogether more than 300 loads of marl over the roots of this one tree, and thus made the mound I had asked about. He expressed a very confident opinion that it was to this feeding of the surface roots with marl and pond water that the development of the tree in such an unusual degree was to be attributed. Many of the conifers at Dropmore were similarly treated, and generally with satisfactory results. *F. W. B.*

ADIANTUM FARLEYENSE VAR. ALCICORNE.—I notice in your issue of March 4, that this is described as a hybrid variety, which I think is incorrect. In our native species, A. capillus veneris, the plumose forms are precisely akin to Farleyense and its sub-variety alcicorne in the great expansion of the sub-divisions in the one case and the incised character coupled therewith in the other. In these varieties, both found wild in this country, there is obviously no question of hybridism, since there are no other indigenous species, and the history of Farleyense, so far as I am acquainted with it, involves no reason to consider it as other than the plumose form of A. tenerum. I notice that in *Ferns, British and Foreign* (J. Smith), the observation is made that "This has the general habits of A. tenerum, but it is a much larger growing plant, and as it does not produce fructification, it is supposed to be a hybrid originated in a garden in the island of Barbados;" but its barrenness proves nothing, plumose sports being often quite barren, as in the case of our plumose Polypodies (P. v. cambricum in several forms), and Scolopendriums (S. v. crispum), and only sparsely fertile as compared with the normal in all cases. In the cases of true hybrids, moreover, the barrenness takes a different form, incipient seeds and spores, or at any rate, ovaries and sporangia appearing sometimes in abundance, though nothing results from sowing. I venture, therefore, to class A. Farleyense and A. F. alcicorne as simply true plumose sports of tenerum (or possibly tentum) and certainly not hybrids, the variation being identical with that of A. cap. veneris cornubiense, a natural sport. *Chas. T. Druery, F.L.S., V.M.S.*

SEVERE WEATHER IN FLORIDA.—On the night of Sunday, Feb. 12, 1899, we had one of the worst frosts that poor Florida has ever had. On my way to the station to catch the early train for Jacksonville, my ears and fingers felt as if they had been frost bitten. On arrival at Jacksonville the streets were one sheet of ice, as it had rained the night before. I could not post my letter at the first pillar-box as the lid was frozen, so had to go elsewhere to mail it. The steamer for Mayport was covered with icicles, and had a most arctic appearance. The thermometer went down to 6°. I saw ice over 4 inches thick, and fear that there are now few Orange groves or patches of Pineapples left alive in Florida. *E. Burslem Thomson, St. Augustine, Feb.*, 1899.

MUSHROOM-MOULD.—It is not very obvious why D. M., in the last week's issue, p. 131, should be so very anxious for the name of this fungus, why he should call it "nameless," or why he should dread the possibility of an application to Germany for a name and description. Growers of plants have generally shared with me a great contempt for fungus names. Names will not clear the grimy old railway tunnel of its tartarean darkness, its stagnant air, its foul dung, its nematoid worms, and its microbes, the "Mushrooms" that emerge from such subterranean and infectious places are not Mushrooms at all, they are—D. M. is anxious for a name—microbe-infested Psalliotæ. What a difference there is between the true Mushrooms, as I find them here in the sweet upland pastures and on the breezy downs, and the dung-borne maggoty abortions I sometimes see exposed for sale in town markets. Now the name of the fungus of Mushroom-mould is as well known as the name of the "disused Scotland-street" railway tunnel, and if D. M. will look through the Answers to Correspondents of back numbers of the *Gardeners' Chronicle*, he will see the name given over and over again, and also discover that the name was not given by the all-knowing Kaiser. If he cannot get at back numbers of the *G. C.*, he should buy the *Guide to the Models of Fungi*, British Museum, Cromwell Road, London, price 4*d.*, post free 5*d.*, and on page 33 he will see the name given as "Mycogone alba, Letell, a stage in the development of a species of Hypomyces." That information ought to spread consternation amongst the spores and microbes of the railway tunnel; if not, let D. M. repeat the following in a loud voice:—"Hypomyces is an Ascomycetous genus of the Sphæriacei allied to Hypocrea, Oomyces, and the Mushroom-bed infesting Xylaria pedunculata." Descriptions and "life histories" of all these will be found in elementary books in and out of Germany. *W. G. S, Dunstable.*

THE CAPER-BUSH.—Bradley's *New Improvements, &c.*, affirms that seeds of the Caper-bush must be sown on an old wall as the only method of inducing the plant to grow out of doors in England. A letter from Bradley to Laurence, headed Camden House, January 25, 17$\frac{17}{18}$, and copied in *The Fruit Garden Kalender* of the last named, points to a very strong probability of Bradley having been the person who either sowed, or as having given directions for sowing, the Caper on the old wall. The proprietor of Camden House was "Mr. Balla," a friend of Bradley's. *R. P. B.*

FUCHSIAS.—Although these plants may be easily raised from seed, a fact which should commend itself to amateur gardeners, still very few persons seem to do so, probably because the plants and the finest varieties can be so easily propagated by cuttings. But this method of increase can only be conducted successfully where there is a greenhouse or frame to winter the old plants, if kept through that season, or the cuttings, if put in in the autumn; then from cuttings only the old variety is produced, whereas from seed diverse varieties are produced. Then seed is fairly cheap, and readily germinates. It should be sown in gentle warmth as soon as is now possible, using for the purpose 5-inch pots, well drained, and fine sandy soil. The seeds should be thinly placed, be gently pressed in, have a sprinkling of fine soil put over them, be then very lightly watered and stood in the greenhouse or frame to germinate. A little heat enables growth to ensue early. If no heat can be furnished, it is a good plan to stand the pots in a shallow box, which is covered closely with glass, and place that into the greenhouse or frame, as in that way a more equable temperature is created, and the box can be covered up at night. But such sowings should not be made until the middle of March, as without heat nothing is gained by the slow rate of germination which follows too early sowing. Seedling Fuchsias need to be grown quickly. Naturally of a free pyramidal habit, it is desirable to encourage the seedlings to develop that habit rapidly when quite young, as in that way the foundation of a good specimen is laid. Seedling plants also less readily flowers, which is again all the better, as they form finer plants first. But when raised in warmth from an early sowing, the young plants, when 4 inches in height, should be put singly into 3-inch pots; from these latter into 5-inch pots, and then, a month or so later, they should get a final shift into 7 or even 8-inch pots. They make quite fine specimens, and will bloom through the autumn finely and profusely. Such plants, when got into the larger pots, may be very effectively used in beds and borders, burying the pots in the soil, this, whilst giving more root-run, also helps to check undue growth, and promotes flowering. These plants, partially shortened early in the winter, can be housed in any cool place from which frost is excluded, and when removed into a greenhouse, and the light in the spring, new shoots break out, and the plants are soon furnished. In such case they can have a shift into 9-inch pots, to flower as specimens during the summer; or in May they can be planted out into beds thinly, where they will bloom finely all the summer. Where Fuchsias are needed for bedding, of one colour and form of growth, of course the plants must be raised from cuttings; and where needed for exhibition, not only must the plants be so raised, but they should be from the best varieties. Not that those which produce the largest blooms are best for that purpose, by any means; it is rather those which, whilst very free and continuous bloomers, also bear transit well, a matter of the first importance in the case of many exhibition plants, but in none more so than with fine Fuchsias. Whilst the showing of these peculiarly beautiful objects as exhibition specimens seems fast falling into desuetude, a matter much to be regretted, they have taken quite a new lease of life as bedding or ordinary garden decorative plants. In not a few cases noble bushes several years old blooming profusely all the season, and in large pots sunk into lawns, or standing beside walks, or on corridors, make very beautiful objects. No doubt, for this purpose, the massive bush form is best, as being less exposed to wind than are tall standards or pyramids, yet if placed where somewhat sheltered from rough winds these make very beautiful objects. Possibly, wider knowledge that Fuchsias can be raised so readily from seed may do much to help promote wider culture for them. *A. D.*

SOUVENIR DE LA MALMAISON CARNATIONS.

Permit me to describe my methods of cultivation in regard to "Malmaisons" for the information o others who may not be well versed in the matter. I will assume that the fact of the plants possessing peculiarities, and that they are not amenable to the methods found to answer with other varieties, is known to all readers of the *Gardeners' Chronicle*, and I will begin with the operation of layering. My practice has been to secure the cleanest plants, and layer at about nine inches from the tip of the leaves, although in the case of two-year-old plants four inches is best, the plants not being leggy. Let the incision be made under and halfway through a node, slitting the shoot up to the next node or joint, and press the hooked peg firmly in the earth. The layers root quicker when nearly severed. Afford the plant and layers an abundant application of water, and keep the frame close for three weeks or a month, when you will be able to detect roots, and air should be given for about three days. On the fourth day sever the layers from the plants and pot them, keeping them close for a few days afterwards.

Souvenir de la Malmaison Carnations like shade and moisture; never, therefore, allow strong sunshine to fall direct on them, or permit the air to get very dry. The layers may first go into 2-inch pots, and at the next shift into 4-inch ones in six weeks, and either in the first week of the new year for early flowering, or later for your latest batch, repot into 6-inch pots; but never allow the largest plants to become pot-bound by waiting for the smaller ones, rather pot the former, and the latter in about three weeks later. The proper kind of soil consists of loam two-thirds (which should be pulled to pieces by hand, and the fine particles sifted out of it), one-third of leaf mould, a small quantity of soot, a 9-inch pot of quarter-inch bones to a wheelbarrow load of loam, and some silver sand. not pot the plants very firmly, and for the final potting use half-inch bones over crocks. On all favourable occasions let the plants be syringed with rain water, twice a day in the summer and once a week in the winter, or whenever the air will dry the plants. An insecticide may be used in this way once a week.

I would advocate the use of rain water solely, and in the winter to keep on the dry side, although a plant should never be so dry as to flag. In the summer the plants require to be afforded water carefully, using soot in it occasionally, and artificial manure much diluted in water, or sprinkled as powder on the surface.

In mild weather the ventilators should be kept open at all seasons, reducing the air inlets to an inch in width when frost is slight, but closing them quite in bad weather. Warming the heating-apparatus slightly in cold weather dries the air, and the moisture does not condense on the plants, and run down to the collars of the plants, but the staging must be kept damp; and for covering, the use of coke crushed small, or coal ashes in lieu of it. The temperature should not fall below 40° F. The soil should be stirred with a pointed bit of stick whenever it has got hard, or the air will not be able to reach the roots, and the soil will sour. The plants which are to be potted for flowering in their second year should be those which have broken low down, and these should be put into 8-inch pots soon after flowering, and then again into 10-inch about ten weeks after. It is advisable then to layer such after flowering, as they may have become inconveniently large. If green-fly appears on the plants, use Richards' XL-All, or as another means of prevention fumigate once a fortnight. Against red-spider use a wash consisting of soft-soap of the size of a hen's egg, a 3-inch potful of flowers-of-sulphur, and two gallons of rain water, and apply with the syringe. Plants which have the Carnation-rust will grow out of it if they are looked over weekly, using methylated spirits with a camel's-hair pencil on the rust spots. This process prevents the rust spores from blowing about; then the infected parts should be cut out and burnt. Last autumn I witnessed a houseful of Malmaison Carnations thickly coated with the rust, and the spores blowing about in quantity. In a case like that, one should advise syringing each plant with an insecticide, the stage and woodwork being well syringed with petroleum in soap-suds. The plants usually flower at the end of May and June. In order to have plants in flower in July and August, they must be placed in the spring in cold frames on the side of a north wall or tall building. These plants, which can only be layered towards the end of the month of August, will be the best for affording flowers the following July and August. For winter blooming the plants that flowered early in May, and were soon afterwards shifted into 8-inch pots, are best. They should be given a night temperature of 55° during the flowering period. In order to have flowers at the end of the month of April, and during the first half of the next month, let the best of the two-year-old plants be chosen, affording them a night temperature of 55° after the New Year is passed. *John Owles, Newby Gardens, Ripon.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

February 28.—*Present:* Dr. Müller, in the chair; Rev. W. Wilks, Mr. Michael, Mr. A. Sutton, Mr. E. F. Im Thurn, and Rev. G. Henslow, Hon. Sec.

Celery, &c., attacked by Grubs.—This was sent by Mrs. Barnet, of Bilton Hall, Rugby, and proved to be much infested by millepedes (vegetable eaters) and centipedes (insectivorous), but not wireworm. The best remedy for these troublesome grubs is gas-lime, or ordinary slaked lime (builder's second quality), well mixed and dug in. It may possibly injure the next year's crop to some extent.

Sweet Pea Seed.—Mr. Sutton described specimens of the seed of certain varieties grown at Reading, remarkable for the skins becoming wrinkled like a Marrowfat Pea; while in one or two cases the Peas were so small that customers had thought they must be defective; whereas the smallest sorts really gave rise to plants bearing the largest and best type of flowers. In another variety the skin is invariably split. With none of these peculiarities, however, is there the slightest deterioration in the quality or character of the blossoms.

Shirley Poppy Seed.—Mr. Wilks observed that the seeds of these Poppies are becoming of a pale grey colour, instead of being nearly black, as was originally the case with the old type of the cultivated Papaver Rhœas bearing black anthers.

Apple Graft Variation.—Mr. Wilks showed samples of the Mannington Pearmain Apple sent by Mr. Peter Veitch, and taken from the original tree which supplied the fruit described by Dr. Hogg, fifty years ago. It is a medium-sized Apple, Russet in appearance, and rugose, with raised lines, though the sample has scarcely a trace of bright coloration, as stated in Hogg's description. The "improved" form was devoid of all roughness, and brightly coloured with yellow and red. It is now widely distributed by grafting, and this improved form is the present recognised Mannington, though widely different from the original type. Professor Bailey records an analogous case in America, in that since the original Newtown Pippin has been distributed over the United States, it has assumed various forms, specially characteristic of Apples growing in the different States, and even in Australia it has also acquired local characteristics.

WARGRAVE AND DISTRICT GARDENERS'.

March 1.—At the last fortnightly meeting, Mr. W. Pope (chairman) read a paper on "Palms, and their Uses for Decorative Purposes."

Mr. Pope illustrated his remarks with some good specimen plants, and gave directions for their successful cultivation, either from seeds or suckers.

The Hon. Sec. (Mr. H. Colesby) also read a short paper on "Plant Defences," showing the various means of defence with which Nature had furnished certain plants for enabling them to protect themselves from enemies or objectionable visitors.

DEVON AND EXETER GARDENERS' ASSOCIATION.

March 1.—A paper was read on "Plants for House Decoration," the Essayist being Mr. G. Camp, gardener to E. Byrom, Esq., of Culver, near Exeter.

To those who have limited space it is essential that the plants employed for the decoration of dwelling-rooms should possess long-lasting qualities, and, in this respect, Palms are perhaps more useful than any other class. Livistona chinensis, Chamærops excelsa, and Thrinax elegans, are reliable species; Chrysalidocarpus (Areca) lutescens being of graceful and feathery habit is a valuable decorative plant, and so are Geonoma gracilis, Cocos Weddelliana and C. flexuosa. Kentia Belmoreana, Seaforthia elegans, and Phœnix rupicola in large specimens are most valuable. For the entrance-hall or the corner of a broad staircase few plants are more useful than Araucaria excelsa. Among Ferns suitable for house decoration were mentioned Asplenium bulbiferum, Pteris cretica and its crested forms, and Adiantum cuneatum, provided they be grown in a low temperature. Amongst plants with coloured foliage, Pandanus Veitchi, Ananassa sativa variegata, Acalyphas, and the variegated form of Ficus elastica, are useful. Some of the Begonias, such as B. rex, B. metallica, and others; Caladiums, Codiæums (Crotons), especially those with long, pendulous, undulating foliage, when carefully grown and well coloured are exceedingly useful. But Codiæums should be changed more often than Palms, as they suffer most from the dry air of a drawing-room. Euphorbia pulcherrima (Poinsettias) are very effective, but they will not stand draughts, and they should be accustomed to a lower temperature before being brought into the house. Two or three-year-old plants of Deutzia gracilis in flower brighten a room nicely. For furnishing baskets, Calanthe Veitchi, Asparagus plumosus, and A. Sprengeri, Grevillea robusta, and Cypripedium insigne, are very effective and cheerful. Amongst Orchids, the old Dendrobium nobile is the most reliable. Primulas and Cyclamens are very popular for such purposes, Azalea mollis and its many varieties are useful in the early months of the year, and with A. indica and its varieties, yield a constant supply of ornamental house plants. Among sweet-smelling plants, Freesias and Lilies of the Valley are to be recommended. Of trailing plants, Oplismenus Burmanni (the Panicums), the Zebrinas (Tradescantias), and Cissus discolor, are very useful. Among bulbous plants, Tulips are more useful than Hyacinths, the powerful odour of the latter being objectionable. For table decoration, one of the most useful materials are sprays of Smilax (asparagoides); these can be used in many ways one of the most effective methods being to festoon a candelabra with it, and trail along from one table ornament to another. Small Cordylines (Dracænas, Palms, and Euphorbias are effective on the dinner-table. Care must be taken that plants placed upon a table will not obstruct the view the guests should have of each other. If a long succession of dinner-parties has to be arranged, a different tone of colour and arrangement should obtain on each succeeding night.

ISLE OF WIGHT HORTICULTURAL.

March 4.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport.

Dr. J. Groves presided over a good attendance of members who had come from all parts of the Island to hear a paper read on the "Cultivation of Peaches and Nectarines," by Mr. W. Tribbick, Brooke House Gardens, an expert in the cultivation of these fruits. The lecturer dealt exhaustively with the details of their cultivation, and especially impressed upon his hearers the mistaken economy of cropping their Peach borders with Potatos, &c.

The exhibits included a collection of large and well-grown Cyclamens, staged by Mr. G. J. Cole, Broadlands, Sandown; and a group of flowering and foliage plants from Mr. A. G. Cave, of Newport Nurseries. In each case a Certificate of Cultural Merit was awarded. The total number of the Society is now 320.

PRESTON AND FULWOOD HORTICULTURAL.

March 4.—At a largely attended meeting of this Society, held on the above date, at the Old Legs of Man Hotel, Preston, an interesting paper upon "Daffodils," by Mr. P. Rudolph Barr was read. A subsequent discussion showed that the members are desirous of creating a greater interest in these flowers in Lancashire.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

March 7.—At a crowded meeting on the above date there were several interesting exhibits. One of an Acacia, probably grandis, a fine variety of pulchella, some magnificent examples of white-flowered Cyclamen giganteum, collections of fine cut blooms of Camellias of the elegans type, some fine trusses of the fragrant hybrid Rhododendron Countess, shown by Mr. Johnstone, who is very successful in raising new varieties of these plants; a three-flowered Richardia, much rarer than double-flowered. An Acacia named cordata, which was new to all present, was shown. Mr. Todd, the late president, had seen it in Covent Garden that morning, had purchased six plants, and placed one of them on the table. The plant was covered with tiny flowers in long spikes, and was growing in a 4-inch pot.

The paper for the evening was "Garden Peas," by Mr. N. N. Sherwood, of Messrs. Hurst & Sons, Houndsditch, London, and read some time since before the Royal Horticultural Society, which was noticed in the *Gardeners' Chronicle* at the time. *D. T. F.*

[The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

	TEMPERATURE.					RAINFALL.			BRIGHT SUN.	
		ACCUMULATED.								
DISTRICTS.	Above (+) or below (−) the Mean for the week ending Mar. 4	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.	More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	3 +	14	26	− 1	− 37	1 −	40	9·0	30	22
1	2 +	18	36	− 15	− 14	5 −	87	5·9	84	26
2	1 +	16	33	+ 52	− 98	3 −	35	3·6	33	22
3	1 −	18	50	+ 81	− 165	8 −	84	3·6	56	36
4	2 −	18	54	+ 77	− 115	3 −	85	6·2	48	29
5	1 −	20	46	+ 108	− 164	4 −	82	5·4	64	85
6	1 +	15	25	+ 11	− 85	5 −	40	9·5	85	21
7	0 aver	13	80	+ 74	− 96	4 −	38	7·1	47	26
8	2 −	19	87	+ 84	− 102	6 −	86	11·2	65	31
9	1 +	25	15	+ 15	− 80	5 −	44	6·6	40	26
10	1 +	33	16	+ 31	− 80	6 −	40	10·4	61	29
*	1 −	34	18	+ 171	− 64	5 −	36	7·4	76	34

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

Obituary.

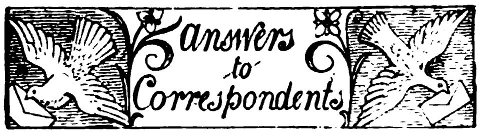
Sudden Death of a Gardener.—Mr. C. J. Rowe, who has for fourteen years held the position of head gardener to Mr. W. H. Scott, of Nunfield, Dumfries, died on Sunday morning after a very brief illness. He had complained of a cold on Wednesday, and this appears to have developed into influenza, complicated by bronchitis. Deceased, who belonged to Exeter, was a man of good attainments in his profession, and of a kindly nature. He held the office of Senior Warden in the Dumfries Kilwinning Lodge of Freemasons. He is survived by a widow and a son and daughter, the former of whom is serving his apprenticeship as a gardener. The funeral takes place to-day (Saturday).

Mr. F. Howcroft.—We regret to hear of the death of this gentleman. The business at 10-11, Floral Street, Covent Garden, will be carried on as usual under the style of Howcroft & Watkins.

CATALOGUES RECEIVED.

Otto Frœbel, Zürich—Plants for Indoors Decoration, Hardy Perennials, Alpines, Bulbs and Tubers, Ornamental Trees and Shrubs, Conifers, Roses, Climbers, and Fruit Trees.

Thomas Kennedy & Co., High Street, Dumfries—Farm Seeds.



Answers to Correspondents

A Climber for a House with a Minimum Temperature of 60°: *In Doubt.* You may select any of the following plants, viz., Passiflora quadrangularis, P. Buonapartea, Ipomœa Leari, I. Horsfalliæ, Bomarea Carderi, B. conferta, Bougainvillea speciosa, or Gloriosa Planti. Most of these only succeed satisfactorily when planted in suitable borders, Bomareas and Gloriosas excepted.

A Greenhouse containing a Nectarine in bloom, a Fig and an Apricot Tree, Vines, Roses, and various Plants: *A. L. V.* The house being a cool one, the plants must be allowed to make very gradual progress. The Vines, fruit trees, and Roses may be lightly syringed night and morning, or in the morning only if the weather is frosty. The temperature may range from 45° at night to 60° by day, affording air in moderation in fine weather, and shutting the ventilators about four o'clock. Do not wet the trees or Vines when in bloom, neither should you aim at keeping the air very dry—it is unnatural, and therefore injurious. If red spider appear on any of the plants, sponge the leaves with soapy water, and apply clear water from a syringe to the under sides of the leaves. Clay's manure would benefit any of the plants that are in active growth. It may be applied three or four times, at tri-weekly intervals.

Books: *Norbiton.* No modern work on the subject, as has been stated scores of times of late years in the *Gardeners' Chronicle.—Fruit Growers' Guide.* This is a useful, modern publication, and you may ascertain its place of publication by writing to the author at 8, Rosehill Road, Wandsworth, S.W.

Calla with White Leaf: *D. N. M.* We get many such specimens.

Double-flowered Gorse: *E. Peden.* Short cuttings of young wood, taken off with a heel, strike freely in sandy soil, under a handlight, placed on a half-shady border, if taken in August and September.

Grafting Orange Trees: *Harbinger.* The operation may be performed in July with nearly ripe wood of the current season, the stocks being placed in a double frame, that is, a frame within a frame, or in an unheated close propagating-case. Tongue grafting, or, in the case of very stout stocks, whip, or even cleft grafting, may be employed. The grafts must be furnished with leaves, which should be reduced in size one half; and they should consist of the firmer butt-ends of the shoots. The stocks must be carefully shaded from bright sunshine, and kept moderately moist, but being in a close atmosphere root watering will not be much required. When the grafts have taken, remove them to a less close frame, affording more and more air gradually. The stocks should have all weakly growths removed, and the main shoots shortened severely previous to grafting.

Green Leaves: *Trood, Lamoureux & Co.* Impossible to name with certainty from the material sent.

Lawn Tennis Court and Bowling Green: *R. P.* The base line and small Courts at each end of the Court are in width 27 and in length 18 feet. The space on each side of the net measures 21 feet, width as before, i.e., 27 feet. The total length of the Court is therefore 18 by 21 by 21 by 18 feet. A Court for a four-handed game has a space on each side of the net of 42 feet; and there are side Courts, having a width of 4½ feet, running the entire length of the Court, but not carried round the ends. A Bowling Green may measure 40 to 60 feet square, i.e., it may contain 1,600—3,600 square feet.

Maréchal Niel Rose: *J. Kettle.* The bloom is certainly of a deeper tint than usual in this variety. You might take buds from the shoot and by inserting them upon different stocks determine whether or not the variation may be made constant.

Misleto Germination: *P. F.* The thrushes and blackbirds disengage the sticky seeds from their beaks by rubbing them against the bark, to which the seeds become attached. The seeds which germinate in the spring develop a sort of sucker, from whose centre a fine root appears, which pierces the tissues of the cortex. All that you have to do is to stick the seeds on the moist, i.e., the under side of a branch of an Apple, Poplar, Maple tree, &c., and wait patiently.

Names of Fruits: *Stratford-on-Avon.* 1, probably Blenheim Orange, but much bruised; 2, not known—certainly not Ribston; 3, one fruit is Mabbot's Pearmain, others same as No. 2.—*Heath & Son.* Not known, some local variety.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—A. M.* Schomburgkia crispa.—*H. crispum.* The Odontoglossum seems to be a very bad form of O. crispum.—*Mackenzie.* Lygodium scandens—a Fern.—*Querist.* Ophiopogon Jaburan variegatum; 2, Casuarina stricta; 3, Vanda tricolor.—*G. T. R.* 1, Cryptomeria japonica; 2, one of the evergreen Oaks; 3, Pinus, we do not recognise the species; 4, Picea Morinda; 5, a Cedar, we cannot tell which one; 6, Abies cephalonica; 7, Thuya plicata, gigantea of gardens; 8, Sequoia sempervirens, Red wood; 9, Viburnum Tinus, Laurustine; 10, Prunus Lauro-cerasus, Cherry-Laurel; 11, Sequoia gigantea (Wellingtonia); 12, Abies nobilis.—*H. J. R., Florence.* The Dendrobium flower that you send has some of the characters of D. × Ainsworthi; but D. nobile itself is so variable, that this can only be regarded as a variety of it. D. × Rolfeæ and its varieties have appeared in importations of D. nobile, resulting from the inter-crossing of D. primulinum and D. nobile, but in these the colour in the lip is partially suppressed. In yours the disc is that of D. nobile.—*A. F.* Dendrobium aureum; 2, Dendrobium Boxalli; 3, Dendrobium Wardianum; 4, Dendrobium nobile; 5, Phaius × hybridus, a cross between P. grandifolius and P. Wallichi.—*H. R. W.* 1, Alternanthera amœna; 2, Alternanthera spatulata; 3, Alternanthera paronychioides major; 4, Alternanthera paronychioides; 5, Sedum carneum variegatum; 6, Pelargonium "Little Trot"; 7, Saxifraga hypnoides; 8, Sedum glaucum.—*W. T.* Nos. 1 and 2 are both varieties of Odontoglossum × Andersonianum, which frequently appear among O. crispum, and results from the intercrossing of that species with O. gloriosum; 3 is a good Odontoglossum triumphans.—*Veritas.* Cymbidium ensifolium has the reputation of being an irregular flowerer. Its flowers usually appear in the end of the summer.—*L. T.* The Cœlogyne cristata seems to be of the form known as "Chatsworth variety."—*C. A. B.* Next week.

Osier on Sewage-Farm Land: *R. H.* We would caution you against planting on land that is always saturated with moisture, as then the crop of Osiers rarely comes to perfection. The trade name "Osiers" means the soft-wooded varieties, mostly of Salix viminalis, the common white Osiers, which are preferred by basket makers. The following are also good basket willows:—S. purpurea, S. helix, or Rose Willow, and others. A small manual containing much valuable matter on *The Cultivation of the W[illegible] or Osier*, by Mr. William Scaling, was published in 1868 by the firms of W. Kent & Co., Paternoster Row; and Allen & Co., Caxton House, Long Row, Nottingham.

Palms: *W. Brown.* We cannot say definitely what has killed the plants. The portions of leaves sent appear to have been injured by gas, sulphur, or some such injurious agency, but this would hardly have killed the roots. Exactly these conditions would result if, through inadvertence, the plants were not supplied with the necessary moisture at the roots.

Patent: *C. W. D.* Write to the Comptroller-General, C. N. Dalton, C.B., or to Chief Examiner Henry Hatfield, Patent Office, 25, Southampton Buildings, W.C. You must thoroughly describe the nature of your patent, and they will then inform you if anything identical has been already patented by anyone.

Peaches Dropping: *E. M. B.* This misfortune is due, in most cases, to an over-abundant set of fruit, or to dryness at the root. It may also occur from a low temperature, or a check caused in some other manner. If it is due to over-abundance, a few timely thinnings may stop wholesale dropping, and if the soil is found to be dry below the surface, afford a thorough application of water.

Richardias: *W. D.* The double spathes are due solely to excessive vigour, brought about by manure in the soil, and probably by a persistent constant selection of the best and strongest budded portions of the tuberous roots. It might in time, by seeding or selection, become fairly constant.

Vine Layering: *A. B. C.* The layering may be done at any season during active growth, the rooting process taking place freely and in a comparatively short time. As the Vine can seldom be moved with a good root mass, the layering should be performed in a basket, which will admit of the whole mass of roots and be removed intact. There is no necessity to remove the basket when planting. Pots may be used, but the roots form a mat at the sides, and must be disentangled in planting, and this causes a check.

Violets Damping off: *W. W.* The plants seem to have "fogged off" from an attack of the species of fungus which is a common cause of damping in seedlings, &c. We think that in future you should dress your Violet plants occasionally with sulphide of potassium, half oz. to one gallon of rain water, not waiting till the fungus appears before affording it. The frame should be placed, not directly on the soil, but on a wall of loose bricks 1½ feet high, the enclosed space being filled up with such hard material as brickbats, gravel, and the like, finishing off with fine gravel; and over this may be placed half-spent hotbed materials or tree leaves, not for affording heat, but to raise the bed of soil that will be placed on them to about 6 inches from the glass. By this means good drainage will be secured, and the air will permeate the bed from below as well as from above. No heat should be used, and thick linings of bracken or exhausted dung-bed materials be packed tightly round the frames, and rather higher than the sides. Air should be afforded the frames whenever the sun shines, excepting after three o'clock in the winter months. Lack of air always favours damping off.

Communications Received.—H. H. D'O.—G. M.—[illegible] E. D. S.—Wild Rose.—C. T. D.—H. W. W.—[illegible] C. W. D.—S. A.—W. A. C.—C. E. F. A.—A. C. F.—L.—A. J. L.—E. B.

IMPORTANT TO ADVERTISERS.—*The Publishers have the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially* [illegible] Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libraries.*

(*For Markets, see p.* xiii.)

THE
Gardeners' Chronicle
No. 638.—*SATURDAY, MARCH* 18, 1899.

ORCHARD CULTIVATION.

A SUBJECT of the utmost importance to fruit-growers is dealt with in *Bulletin* No. 52, issued by the University of Illinois, Agricultural Experiment Station, Urbana, last year. The report briefly describes some experiments undertaken with the object of ascertaining the relative progress of Apple-trees in cultivated land, and in that occupied by various crops. Some interesting facts have resulted, but we cannot help wishing that the experiments had been carried still further, and that more details had been given in the report under consideration. It is so rarely that we can accord anything but commendation to the admirable records issued from the American Experimental Station, that we regret to notice several defects which might easily have been remedied, and which detract from what would otherwise have proved a most valuable production.

It seems from the introduction that the peculiarities resulting from neglect, too often painfully apparent in British orchards, are similarly predominant in Illinois, for the report says, "Throughout large sections may be found the rotting remnants of once extensive orchards, representing large original expenditure of both labour and money." It is further remarked that on investigation the "true reason" for this is found to be "lack of sufficient, or the entire absence of proper cultivation and care." This is a serious indictment, but there is little doubt it is founded on fact, and the same charge might be brought against many orchard owners on this side of the Atlantic. As is usual in other cases, failure is attributed to many causes except the right one, the unsuitability of the soil is urged occasionally, whereas examples of success can be shown in the same district, and under precisely similar conditions, save in the matter of attention. The Report proceeds to state that the most commonly assumed cause of failure is winter pest, yet "it is found that orchard injuries and exceptionally severe winters do not coincide," and the real cause is more frequently directly traceable to summer drought. There is, no doubt, a good deal of truth in this, and British cultivators have occasionally had ill results in hardy fruit plantations or orchards from the same influence, though not so frequently as in the United States. It is correctly said that "a scanty supply of water tends to check growth, to ripen that already gained, and then to terminate, in effect, the season's period of development. Subsequent spring-like influences cause a second development of activity, and more or less resumption of growth late in the year. The tree now goes into winter in poor condition to withstand even the ordinary vicissitudes of the season. It suffers not so much because of severe climatic influences as because of its own abnormal, if not enfeebled, condition."

One of the leading objects of the American cultivator is, therefore, rightly held to be the preservation of soil-moisture during the spring and summer, and this is just as applicable here in its principle as it is there. Frequent surface cultivation is recommended to form a "dust-mulch," to prevent the escape of water from the soil, and every word of this we could confirm and enforce by examples from our own experience.

The special objects of the experiments undertaken and treated in this report, were to demonstrate the beneficial effects of clean cultivation upon fruit-trees in comparison with others grown on similar land occupied with various crops, or in a partial state of neglect. The experiments were commenced in 1887-88, but not systematically, and little more was done than sufficed to show that "the effect of cultivation was to conserve the soil moisture." The work thus commenced was extended in a more systematic way in 1890, when six rows of Apple-trees, i.e., three of Ben Davis and three of Grimes' Golden were planted, and the plantation was then divided into five plots. It is not definitely stated how many trees there were in each plot, but it appears from the tabulated results that there were twenty-four in each, except in the plot devoted to grass, where there were half that number. The trees were planted 15 feet apart, and, judging by the illustrations, were low standards; but no information is given as to their age at the time of planting, nor with regard to the stocks upon which they are worked. The five plots were treated in the following way:—No. 1 was clean cultivated, No. 2 was cropped with Oats, No. 3 with "corn" (Maize), No. 4 with Clover, and No. 5 with "Blue-grass." According to the report, "this system of cropping and cultivation has been since continued," so that the trees had been treated in the same manner for eight years when the record was taken, yet not a word is said about the "fruit," though details are given respecting the growth, which are of great interest, though unfortunately they do not deal with the whole of the trees, but only one row of each variety, or four trees in each plot, except in the grass where only two have been measured. The averages are not, therefore, strictly comparable, but, notwithstanding this defect, there is such a marked increase of growth in favour of the trees in cultivated clean land, that the figures are reproduced in the following table:—

Average Measurements of one row of Apple Ben Davis.

	Diameter of trunk.		Height.		Diameter of top.	
	At surface of soil.	At 1 foot.				
	In.	In.	Ft.	In.	Ft.	In.
Cultivation ...	19 3/16	16½	18	9¾	15	4
Oats	16 11/16	14¼	18	0	13	6
Corn	20¾	17¾	18	8¾	14	4½
Clover	18¾	16¾	17	6¾	13	10½
Grass	9⅝	8½	11	0	8	0

Average Measurements of one row of Apple Grimes' Golden.

Cultivation ...	12¼	10½	14	1¼	10	0¾
Oats	9	8	11	10½	7	7
Corn	14½	12 1/16	14	9	10	7½
Clover	10¼	9¼	12	11	8	11½
Grass	8¼	7⅝	11	3	7	6

As indicating the dangers attending averages derived from a small number of individuals, it may be mentioned, however, that one tree of Grimes' Golden in the cultivation plot, shows a foot less in the diameter of the top (or spread of the branches) than one of the two trees of the same variety in the grass plot taken for the average; namely, the former measured 8 feet 6 inches in diameter, and the latter 9 feet 6 inches. Still, regarding the results generally, both as shown in the tables and in the illustrations which accompany them, there is a striking difference between the development of the trees in the cultivated plots, and in these under crops.

It is remarkable that the Clover plot should show so low an average, as assuming that this crop has enriched the soil in nitrogen, it is evident this has not been sufficient to counteract the ill-effects of moisture exhaustion. The trees in the Corn-plot show a high average, but this is attributed, by the recorders, to the fact that the trees being so near to each other (15 feet apart) had shaded the spaces between, and prevented the Corn attaining half its usual size.

The effects upon the root system of the trees are reviewed, from which it appears that the cultivation rendered the roots more compact, and forced them deeper into the soil, the advantage of the latter being obvious in some light soils and dry climates, though in others it might be disastrous. One tree in each plot was also cut down, and the five being depicted in one illustration the differences are very striking as regards the size of the stems.

The soil was examined in the autumn of 1897, with a view to testing the amount of moisture present in the different plots, and as the result of repeated trials dealing with the first 27 inches of the depth, the average percentage of moisture was found to be as follows:—Clean cultivated, 12 per cent.; Corn, 8; Clover, 10; Oats, 8; and Grass, 8. These percentages are all low, owing to the very dry season experienced, but it is pointed out that as "the moisture must exceed 10 per cent. to make it available to the plant to any extent," the cultivated plot, even in this, shows a marked advantage as compared with the Grass-plot.

In England, the experiments at the Woburn Fruit Farm have fully demonstrated the injurious effects of grass growing round either dwarf or standard trees in their early years, growth, foliage, and fruit sharing in the evil results, but how far this is due to the exhaustion of soil-moisture or food constituents, has yet to be determined. It will probably be found that the loss of moisture is literally at the root of the evil. *Observer.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA LUDDEMANNIANA.

Of all the forms of Cattleya labiata, this fine Venezuelan type, which is more commonly known in gardens as C. speciosissima, is one of the largest, most variable, and also the most beautiful, though unfortunately many who succeed in flowering the other forms, fail to get good results with this one, and hence it has a, perhaps, not undeserved character for uncertainty of flowering.

Some cultivators, and especially those who reside in sunny districts, flower it regularly, and one who is very successful is Mr. Joseph Broome, of Sunny Hill, Llandudno. Each year with fine examples of Cattleya Trianæi, or C. labiata, comes one or two examples of this fine Cattleya, which appears all the more striking in that they are less often seen than the others.

Together with some very handsome forms of Cattleya Trianæi, Mr. Broome sends a noble flower of C. Luddemanniana, of fine proportions; the sepals and petals bright rosy lilac, the lip veined with purple on a lighter ground, the broad, crimped front portion of rich velvety crimson-purple. Some good examples of Cattleya bicolor, Cœlogyne cristata alba, C. c. Lemoniana Dendrobium Brymerianum, and other showy things, testify to the good cultivation given to the plants at Sunny Hill.

THE ROSARY.

THE ROSE GARDEN IN MARCH.

By Rose garden, I mean those gardens which have a space larger or smaller, as the case may be, especially devoted to the culture of Roses, and I leave out of view all the gardens of professional growers and those of amateurs who cultivate so large a quantity of plants as to bring them almost on a level with professionals, and who require no instruction, but are much more capable of giving it; but I rather write for the smaller amateurs, who are always glad to receive any scrap of information.

Amateurs' Gardens.—These gardens may be divided into two sections, those in which Roses are grown for exhibition, and those in which Roses are grown for the personal gratification of the owner. These will at this season present a very different appearance; in the case of the former the beds will be covered with a thick coat of farmyard manure, which the grower is anxious to leave on, not merely for protection, but in order that the plants may derive all the nutriment possible from it. I need hardly say this does not improve the appearance of the beds, however useful it may be. But the grower who has only his own gratifications in view, and who dislikes to see untidy beds, will remove all the long, strawy portions, and fork-in all the short manure, and will generally make his bed neat and clean. In forking-in, care must be taken not to disturb the roots.

Pruning.—This needful operation will now, of course, be much in the mind of the grower, and it is astonishing, considering all that has been written on this subject, and the number of questions that have been asked and answered, that so much ignorance should still prevail on the subject. An amateur would never entrust this operation to the gardener unless he is one whom he has specially trained for it, and upon whose carefulness and intelligence he may thoroughly rely; for a man may understand all about Vines, stove plants, &c., yet put him into a Rose-garden, it is certain that he will make a muddle of it. He has learned that hard-pruning is necessary, and so he treats all alike, whether they are strong or weak growers; whereas an amateur usually knows that the hard pruning applies to the weaker growers, and if he applies it to the stronger ones, he will get plenty of shoots, but few flowers. After such a season as we have just gone through, where in this south-eastern part of England we have had neither frost nor snow of any consequence, the grower may be tempted, when he sees the extremities of his Rose-shoots covered with foliage, to think it is time for him to apply the knife; he will be unquestionably wrong if he does so, because I do not think anything should be done to encourage a too early start of the buds towards the base of the shoot, on which he will rely for his blooms in the coming season. If the shoots are left long, there may be growth at the extremity which will absorb the sap, and so prevent the lower buds from swelling.

After a mild winter such as we have just experienced, the temptation to prune early will be all the greater, but it is best to wait till the usual date, i.e., the end of the present month; and, indeed, there is some truth in the contention of your correspondent last week, that seeing the change which seems to have taken place in the past few years in our springs [?], it might not be advisable to postpone the operation of pruning until the early part of next month. We generally experience towards May 20 a severe turn of frost, and if we could so retard the young shoots as to save them from this, it would doubtless be a great gain for our Roses, although the shoots may not be seriously injured; yet, without doubt, a sharp frost cripples the buds, and so the first growths are comparatively useless. There are some varieties which are uniformly vigorous in all situations, but I have heard great difference of opinion amongst rosarians in different localities concerning the same Rose; for instance, Etienne Levet is considered to be a most vigorous grower, but I have never found it so, and I therefore think that the amateur will be well advised were he to consider not what the character of the Rose may generally be, but what he has found it, and if his plant is weakly to prune it hard, and if strong to spare the knife. Two or three buds may be left on shoots of the weaker, and half-a-dozen on the stronger growers.

Pruning of Climbers.—There have lately been introduced a number of Roses more or less of the rampant character, and which go under the name of climbing Roses, though they do not climb; to treat these as one would treat the dwarfs or standards would be most injurious. Take, for instance, Turner's Crimson Rambler; how often it has been said to me, "I think Crimson Rambler is altogether a mistake. I have had it for two or three years, but I cannot find any buds on it." "But how have you treated it?" is my question; "especially in the matter of pruning?" "Oh, I cut it pretty hard, or else it would be all over the place." Yes, and you have done exactly what will eventually prevent its blooming. Young shoots if strong ought to be left alone, and the old ones thinned out, in order to make space for the younger; if this is done, you will be pretty sure to have a quantity of bloom. The same rule holds good with regard to our rampant Noisettes; and to all the varieties of the Gloire de Dijon section, which should have all the old wood removed, and space left for the development of the new shoots. Some of this section, like Madame Berard, Gloire de Dijon, Madame Trifle, and others, make long, lanky shoots, and are bare of foliage for a long distance; while others, such as Bouquet d'Or and Rêve d'Or, are beautifully covered with foliage all the way up. I know no Rose so well adapted for covering the wall of a house as the latter, its beautiful foliage and brilliant yellow flowers always impressing those who see it in this condition for the first time with a sense of its great beauty. Some of the Polyantha Roses, such as Polyantha simplex, may, on the other hand, be left to wander at their "own sweet will." I had one of these planted in my own garden, and it was certainly a very pretty sight when in full bloom; but it grew large and absorbed so much space that I was obliged, to my great regret, to root it up.

Such are a few general remarks on the condition of, and seasonable work in, our Rose gardens at this season. Those who want more precise directions should consult Mr. W. F. Cooling's observations at the Rose Conference at Halifax last year, published by the National Rose Society, in which, I believe, he will find all the information necessary on the subject of pruning. *Wild Rose.*

MARKET GARDENING.

VEGETABLE CULTURE.

Well-grown vegetables, whether the product of garden or field, always command a ready sale in the neighbourhood of cities and large commercial towns and seaside resorts, whither the produce can be taken in the growers' own vans at a small cost. A light rather than heavy soil of fair depth is capable of producing all kinds of vegetables of first-rate quality under good cultivation. A good coating of short manure should be laid on the ground, and the latter double ploughed, in order to provide proper depth for the several crops, especially root crops, such as Parsnips, Carrots, and Beet, to push their roots into in search of food and moisture, as well as in the process of root-development, depth of soil being absolutely necessary in this respect, in order to secure good specimens of the root-crops indicated above. Assuming that the ground has already been manured and ploughed in the manner described, it should be harrowed, and, if lumpy, rolled, and again harrowed as soon as the condition of the weather and ground will permit of the work being done without the soil adhering much to one's boots, and the crops put in forthwith. Parsnips, Carrots, and Onions should be sown as early in February as the state of the ground will permit of the necessary preparations and work being performed.

Parsnips, Carrots, and Onions may be drilled-in in drills 1 foot apart, the soil being afterwards closed in over the seeds with a light roller. Only seeds of the best quality should be used, sowing seeds of Parsnips and Carrots more thinly than the Onions, seeing that the latter can be drawn young for salading—that is, the thinnings can be used for salading purposes, being tied up in small bundles while being thinned, for marketing. Should soot be available to strew over the ground in sufficient quantity to discolour it immediately after drilling-in the seed, especially in the case of ground cropped with Onions, it will tend to preserve the roots from the attacks of the Onion-maggot and wireworm, creatures which in some soils are very destructive to root crops. The Onion-plants may be left at from 2 to 3 inches apart in the row in thinning, allowing about 9 inches from plant to plant in the case of Carrots of the Long Surrey type, and Parsnips. At this distance, the yield of one acre would be 4840 roots, which being of average quality would, according to current wholesale prices, realise from 6*d.* to 9*d.* per dozen for Parsnips, giving a sum total of from £121 to £181 10*s.* per acre. While the same area cropped with Onions would yield from 10 to 12 tons of bulbs, which, at the current wholesale prices of 6*s.* 6*d.* to 7*s.* per cwt., being respectively £65 and £70 for 10 tons per acre, £78 and £84 being realised for the heavier crop of ripe bulbs; these returns being in addition to those secured by the marketing of the thinnings during the early summer months. Thus, it will be seen that after all expenses involved in producing and marketing the several crops, including rent of land, have been deducted, a good balance will remain on the right side.

After the young plants have come through the soil, the latter should be stirred between 1 and 2 inches deep within as many months, not only with a view to destroy weeds (which are sure to appear), but also to stimulate growth in the plants.

Peas are also a paying crop. Good, dwarf growing, early varieties, and prodigious bearers, such, for instance, as Carter's Lightning, should be sown early in ground prepared as described above, drilling-in the seed in drills about 2½ feet asunder. *H. W. Ward, Rayleigh.*

THE EUCALYPTUS GLOBULUS.

As a good deal has recently been written on this tree, perhaps I may be permitted to record my little experience regarding the same. When at Lucknow, I used to receive seeds of various kinds of Eucalyptus from the late Baron von Mueller. Of course, the E. Globulus was among them. I raised several plants of the latter, and planted a row of them. They made rapid progress, and in a few years gained the height of between 20 and 30 feet, with a thick stem in proportion.

I began to be proud of having introduced this wonderful tree, which then had the reputation of draining marshes. Well, one monsoon came with torrential rains, and every one of my beautiful E. Globulus died from too much water at the roots, and an atmosphere saturated with moisture. I began then to be sceptical about the supposed properties of this fast-growing tree of draining marshy land.

The only variety which I succeeded in growing was the E. citriodora, which, when it sheds its bark, leaves the stem as white as snow. It flowered and seeded; but I do not know what the result was after I left.

On another occasion I landed at Naples from Bombay in January. It was snowing, and the pools round the fountains were hard frozen—a very unusual occurrence in that latitude. On my way from Naples to Rome I saw a number of large Eucalyptus-trees—presumably E. Globulus—killed by frost.

The only place in India where I saw the Eucalyptus Globulus thrive was on the Nilgherry Hills at Ootacamund. The frost there is very slight, and occurs only on the highest ridges; and the drainage on the hill slopes is very good. It was a beautiful sight to see a hill-side covered with the young blue trees. The only use they make of the tree there is for firewood. As to the Eucalyptus-oil, a lady in London told me that when she caught a cold, she rubbed a little of this oil round her mouth and nose, and the cold was scared away. I thought I would try this wonderful oil the first time I caught a cold. I had not long to wait; and one night I rubbed some as directed, and got into bed. In a very short time my face felt as if it were on fire. I had to jump out of bed and put my face in a basin of cold water, when I got some peace!

REV. GEORGE H. ENGLEHEART,
A Vice-Chairman of the Narcissus Committee of the Royal Horticultural Society.
(See p. 168.)

A friend of scientific culture assures me that in the City there is an insurance company who employ a large number of clerks. During an epidemic of influenza, the porter was instructed to go round and drop Eucalyptus-oil on the blotting-pad of each clerk, and my friend asserts that not one of those clerks got influenza. They were all the time inhaling an atmosphere containing the essential oil of Eucalyptus. Such a thing, it would seem, might easily be verified. I am not aware, however, that any scientific investigation has ever been made of the properties of this oil. When a new drug is introduced, the sellers of it exaggerate its curative properties to such an extent that it soon falls into discredit and neglect. There are few things in Nature that have not some use.

The history of the metal "thorium" is a lesson. It was very rare, and was thought to be very useless. Now, however, as Thoria, it is used everywhere for incandescent lights. The demand for this metal caused geologists and chemists to search for it, and it was found that, after all, it was not so very rare. When a thing is pronounced useless, it means that no use for it has yet been discovered.

In an article in the *Gardeners' Chronicle* on "Rome," it was stated that the Trappists near Rome can now live where, before they planted Eucalypti, they could not live. In the *National Review* for February, 1899, in an article on the "Rule of the Chartered Company," by H. C. Thomson, p. 901, this is stated:—"Look at Tasmania . . . with a glorious climate, in which it is difficult to feel ill, with Eucalyptus forests in which fever cannot exist," &c. Now is all this true, or is it mere hearsay? If Tasmania has such a glorious climate, why should the non-existence of fever be attributed to Eucalyptus forests?

Then in the *Standard* of February 14, 1899, it is stated that "Influenza has made its appearance again . . . and alike in church and on 'Change the odour of Eucalyptus is significantly perceptible."

Rightly or wrongly, many people evidently believe in the property of Eucalyptus oil of staving off influenza. Investigators of the future will have to find out what is true and what is not true, not only in this, but in many other things. In a butcher's shop I saw a miserable-looking plant of E. Globulus in a pot. I asked why he kept it there? He said, "It keeps away flies." I thought I would try the experiment in my room, where flies abound in summer. I cut some branches off a blue Gum-tree I have, and placed them in a jug of water on the mantelpiece. Lo and behold, that very same evening there was a fly on the wall a few inches above the Eucalyptus leaves, and I have been told that flies have been seen to actually settle on its leaves! *E. Bonavia, M.D.*

REV. GEORGE H. ENGLEHEART.

We have pleasure in affording our readers an excellent presentment of the Rev. G. H. Engleheart, rector of Appleshaw, Andover, a Vice-Chairman of the Narcissus Committee of the Royal Horticultural Society, and well known among horticulturists as the raiser of a number of mostly beautiful varieties of Narcissus. Mr. Engleheart has been engaged in the delightful occupation of raising new varieties of Narcissus from seed for several years, as a reference to our reports of the Royal Horticultural Society will show. Last year his stand of new seedlings at the R. H. S. meeting on April 12, was the centre of attraction in the Hall, the beauty of form and colour which, displaying in many instances a wide departure from all known varieties, and appealing to the tastes of almost every beholder.

The *habitués* of the Drill Hall have doubtless a similar if different display in store for them this season.

Mr. Engleheart's experiments are conducted on scientific lines, but withal a practical aim. He has repeated and confirmed many of Dean Herbert's experiments, and has greatly extended the work of that famous physiologist and cultivator.

FORESTRY.

THE HOME NURSERY.

(*Continued from p. 102.*)

The raising of ordinary forest trees on a large scale in the home nursery is most advantageous in the case of a species which is particularly well adapted to the locality, and which not only produces seed in large quantities but also develops rapidly during the seedling stage. Heavy soil, and situation, if taken together, will be found suited to some particular species better than any other, and if this suitability can be discovered accidentally or by experiment, it is a pity not to take advantage of it. Well-grown seedlings are always saleable if more are grown than are required for home use, and nurserymen are usually only too glad to get hold of a lot at a low rate, or in exchange for other plants. Oak, Ash, Beech, Birch, Scotch Fir, &c., are easily raised in soil adapted to their respective requirements, and as such species as these seed freely where they are thoroughly at home, the expense of collecting and sowing is all that has to be reckoned with. The chief difficulty in some soils and situations lies in keeping the ground clear of annual weeds, especially when near a wood or waste ground, and with coniferous seed clear ground is of the first importance. With large seeds, sowing in rows usually enables hoeing to be effectively carried on.

The most useful function of the home nursery, however, consists in the raising or, rather, growing on to a fairly-large size those ornamental trees and shrubs which are chiefly used for immediate effect, or which are too expensive to risk planting out in small sizes. Such plants are constantly required on an estate of any size, and the advantage of having them close at hand, and being able to lift and re-plant them on one and the same day if necessary go a long way towards ensuring success. Large plants are not only very expensive to purchase, but their removal is attended with considerable risk if unlooked-for delay or unfavourable weather intervene during the transfer from the old to the new quarters. Removed in a careful way from the home nursery, and during favourable weather for the work, few failures occur, and that severe strain upon the vitality of the plant, which usually accompanies transplanting, is avoided to a great extent. On this score alone, the home nursery justifies its existence, in spite of the fact that the cost of repeated transplantings may make the home-grown plants as expensive at the time of planting-out as purchased ones. The better results obtained from the use of the former will always give them the advantage when the final reckoning arrives, and this advantage increases with the size of the plants used.

A great deal of discretion is required in stocking a home nursery, both as regards number and variety. If used chiefly for the purpose we have indicated, it will probably be under rather than over-stocked, for there is usually a good demand for ornamental stuff amongst farm and cottage tenants, who want plants on the spur of the moment, and who are not exacting as to the species. As to variety, this should be determined to some extent both by the soil of the nursery and that prevailing on the estate, as those trees and shrubs which thrive best in the locality should be most in evidence. As a general rule, the nursery should be situated on the prevailing soil of the estate, but this may not always be convenient or practicable, and the stock may have to be modified accordingly. The immense variety found within the boundaries of any public nursery demonstrates the possibility of growing most plants on any kind of soil, but in such cases the necessity of meeting many and varied calls upon its resources accounts for this, and it does not follow that the question of soil can be ignored. If a piece of ground can be selected which contains both light and heavy soils, or a happy mean between the two, so much the better, and so much the greater latitude is offered in stocking the ground. But on soils of a very pronounced type, such as clay, or light sandy loam, there is no advantage to be gained in attempting to raise species which prefer the opposite extreme, whichever it may be, to the soil of the nursery. If the latter be of a lighter and drier nature than that adapted to the growth of the species, it suffers in time of drought, its vigour is greatly decreased, and the plants are liable to insect and fungoid attack. On the other hand, a heavy soil results in badly-rooted plants of those species which like a light, dry soil, and a wet autumn produces badly-ripened wood. In fact, for any but moisture-loving species, a stiff nursery soil is not desirable, and seldom produces plants favourable for transplanting besides being much more difficult and expensive to work than light ground.

Where a permanent nursery cannot be established on a soil adapted to nursery stock in general, and plants are required which do not succeed well in it, temporary nurseries on more suitable soils come in very usefully at times, and for ordinary forest trees are often preferable to permanent ones. They are exceptionally useful when planting a large area of ground which has to be repeatedly "broken up" for some reason or other; most frequently from the poor, arid, or shallow nature of the soil, in which plants from better ground are difficult to get established. A few poles of ground trenched over in the best situation that can be found, and fenced round with wire-netting, is usually the form this kind of nursery takes, and is only maintained so long as the particular class of plants it holds are required in the plantation. Another form of temporary nursery, and the most inexpensive of any, is one of those patches of seedlings which are frequently found in hardwood plantations. Hundreds of good young plants can be lifted out of these patches and planted on adjoining bare ground, and in cases of systematic natural regeneration, this operation is usually a necessity before the area is fully stocked.

The most important qualification a nursery of any kind can have for all but very hardy species is a situation out of the reach of late and early frosts, for a young tree cut back by frost rarely becomes a well-shaped specimen under two or three years, while if the injury from this cause is repeated two years in succession, many plants are almost worthless for planting out. *A. C. Forbes.*

(To be continued).

BOOK NOTICE.

The Municipal Parks, Gardens, and Open Spaces of London, their History and Associations. By Lieut.-Col. Sexby, V.D. (with numerous illustrations). (Elliot Stock.)

The title-page fairly indicates the nature of the contents of this book. It is a detailed and descriptive list of the pleasure-grounds of the metropolis, other than the Royal Parks, Wimbledon Common, Epping Forest, and others not under the jurisdiction of the London County Council. Our first impression, on perusing the book, is one of profound satisfaction that so large an area has been secured, free from the intrusion of the builder. The next feeling is, that whilst the outer borders and the suburbs of London are, as it is shown, well provided with breathing spaces, the central portions of the great city are still lamentably deficient in open spaces. The reservation of a large number of small areas, well distributed throughout the densely crowded parts of the metropolis, is now a matter of much greater importance for sanitary purposes than the acquisition of large parks at a distance.

Those who look in this book for many details relating to landscape gardening or to horticulture as practiced in the parks, will be disappointed. These subjects are, of course, not wholly ignored, but they are treated very scantily as compared with the "history and associations." As we are told this outright on the title-page, we have no right to complain, however much we may regret what we may think a lost opportunity. What we have is an account of each park or enclosure, together with a very full presentation of the historical associations connected with it. Thus, while only two or three pages are devoted to a description of the Embankment Gardens proper, about twenty-five are taken up with the history of the Cleopatra obelisk, the Savoy Chapel and Hotel, and other edifices, having only indirect connection with the gardens. It is satisfactory, however, to have so many details of surrounding structures, and so many dates recorded in so accessible a form. From this point of view Col. Sexby's volume will form a valuable work of reference.

Under the head of the Albert Embankment Gardens, we have a short account of Lambeth Palace, including a statement to this effect, "In this hall was held one of the most famous trials of modern times—that of Dr. King, Bishop of Lincoln, for ritualistic practices. The case was tried before the Archbishop and five other Bishops, and in the end Dr. King was acquitted of all the charges except two." What this has to do with the Albert Embankment Gardens, it is not easy to estimate. Some mention of the old physic garden of the Society of Apothecaries near to the Chelsea Embankment Gardens would have been more in place, even though it did not technically fall within the scope of the book. Under the heading Waterlow Park, we find reference to the Hon. and Rev. George Spencer, who is said to have adopted the name of "Father Ignatius." If so, there must have been two Richmonds in the field, for we believe the family name of the present Father Ignatius, of Llanthony Abbey, is Lyne. While so much is said of Wapping, which has little or no connection with Wapping Recreation Ground, it is remarkable that nothing should be said about the notorious Tichbourne Claimant, who has as good a claim to commemoration in these pages as Judge Jeffreys, to whom some space is devoted.

The beauty, picturesqueness, and interest of some of the London commons is duly alluded to, and the account of Bostall Heath is enough to make one want to visit it forthwith. Comparatively little mention, however, is made of those geological and natural-history features which give so great a charm to these open spaces, and which, indeed, furnish the key to their beauty and interest. The botanist and entomologist may still find plenty of material for their researches, even in places which at first sight seem very unpromising. Perhaps it is as well that the author has been reticent upon these points, but he would have been quite in order, and done no harm, had he given us lists of the trees and shrubs which thrive best in the London squares and on suburban commons, and a few hints on the most appropriate methods of laying out these enclosures according to varying circumstances. Whilst we cannot look upon Col. Sexby's book as at all complete, especially from the horticultural point of view, we may commend it to the reader for the great variety and interest of the information the author has got together, information which will be of interest to every Londoner, whether within or without the twelve-mile circuit. The book is full of interesting illustrations, and has a good index.

SPONTANEOUS HYBRIDS OF HARDY PLANTS.

(Continued from p. 148.)

The genus Dianthus makes a great variety of hybrids out of a few species grown in my garden, and as most of the hybrids are fertile, and their progeny seems to be more disposed to depart further from the parental types than to revert to them, a nondescript medley is the result, in which it is difficult to find any consistent characters. I will first mention three good species which I have grown almost annually from home-saved seed for many generations without noticing any signs of hybridising. These are D. alpinus, D. neglectus, and D. sylvestris. Also D. deltoides, both the pink and the white form, comes up spontaneously in many parts of my garden year after year true to the type; but it certainly lends its pollen to form hybrids with one other species which I raised from seed sent as D. viscidus, but I believe it to be D. pubescens. Anyhow, seedlings from it are intermediate between that and D. deltoides. I next mention two species, both of which I have repeatedly raised quite true, viz., D. superbus from imported seed, and D. cæsius from seed collected wild for me on the Cheddar rocks. The seed I save from these species never comes true to the parent. D. superbus is only biennial in Edge garden, but the hybrids I raise from it are perennial, and very prolific in the way they spread. The flowers of one form exactly resemble the portrait of one named D. Fischeri in Sweet's *Flower Garden*, and looks as if the pollen-parent had been D. barbatus. Other forms are much dwarfer, and the flowers might be called intermediate between those of D. superbus and cæsius. These may be increased without end by pulling off and striking the tufts; but they also produce seed, which grows into various and, for the most part, worthless forms. D. cæsius itself always shows hybrids from the seed I save in my garden. These mostly tend in the direction of what I suppose to be dwarf forms of D. plumarius, having generally a conspicuous dark purple eye and a white fringed edge, and retaining the glaucous tufts of D. cæsius; these, too, are fertile, and in one or two more generations some of them grow in size, and have a tendency to become double.

I have no knowledge of the wild type of D. plumarius, to which the garden Pink is referred; but whether D. cæsius is a recognised factor of the garden Pink, or whether, by repeatedly crossing with the double garden forms, it gradually assumes all their characters, I feel certain that in a very few generations from genuine D. cæsius, garden Pinks may be produced. Other doubtful elements in the medley of small nondescript Pinks which abound in my garden may be D. rupestris, D. fragrans, D. caucasicus, names under which I have bought and raised seed, though I have seldom been satisfied that it was genuine; but when mixed together, they result in densely tufted plants, flowering more or less plentifully on stalks from 6 inches high to more than a foot, the solitary flowers being either much fringed or nearly plain, and from half an inch to 1 inch and a half across; all of them produce seed freely, which I distribute to my friends as "mixed dwarf single Pink." They are very fragrant, many having the usual clove scent, but some smelling distinctly of Jasmine. Besides these I grow recognised hybrid forms, such as that called Cyclops, some of which are fertile, but I have never found any constant from seed.

Aquilegias, when grown together, are as difficult as Mulleins to keep true to the parents from seed; but in Aquilegia, the species are less clearly defined. It is not many years since Bentham announced, in *Genera Plantarum*, that the fifty or sixty species of Columbine ought probably to be reduced to five or six; but leaving this to be settled by botanists, there is no doubt that if the distinct forms are isolated, they may be kept perfectly constant from seed for an indefinite time, as the kind called A. glandulosa has been in the Highland nursery at Forres. When flowering simultaneously in Edge garden, they are visited and crossed by humble bees from the hour that the flowers open until they drop to pieces from the repeated probings of these bees, and though I regularly mark the best flowers for seed, I never know what the seed will produce.

In Columbines, however, there is always a tendency to revert, and the best forms sometimes come again after a generation or two, though the general tendency is towards the more robust kind, and, unless weeded out, the stronger A. vulgaris seems to prevail. A. canadensis, A. chrysantha, A. cœrulea, long spurred kinds, make hybrids indifferently with one another, and with the short-spurred A. vulgaris and A. glandulosa; only two or three species, from flowering at a different season or being unsuited for the foreign pollen that comes in their way, continue true. The first is a A. viridiflora, a distinct and delicate kind, rarely seen, though I have raised it from seed more than once, but soon lost it. Another is A. Skinneri, of which I once got true seed, though hybrids of A. canadensis generally do duty for it. I found the genuine plant wanted a warmer climate and soil than those of my garden. At first it flowered well in July, then less well in August, then shabbily in September, and dwindled away. A third kind, which I am glad to keep true, is the dwarf crisp-leaved, large-flowered A. pyrenaica, a delightful little rock plant. This does not flower till late in June, when the coarser kinds are over, and makes true seed, and is an ornament to my rockery all through July. All the other so-called species I have tried coalesce in the next generation with those they find already in the garden. I would add, that my friend the late Mr. Rawson, of Fallbarrow, used to hybridise Columbines successfully, both as to colour and mixed characters, by complete isolation when in flower, and cutting out the anthers. I have tried hybridising in the open garden without any definite results. Nearly all Mr. Rawson's hybrids could be matched by some of my spontaneous hybrids, but he could ensure the result which in my case is accidental. *C. W. Dod.*

(*To be continued.*)

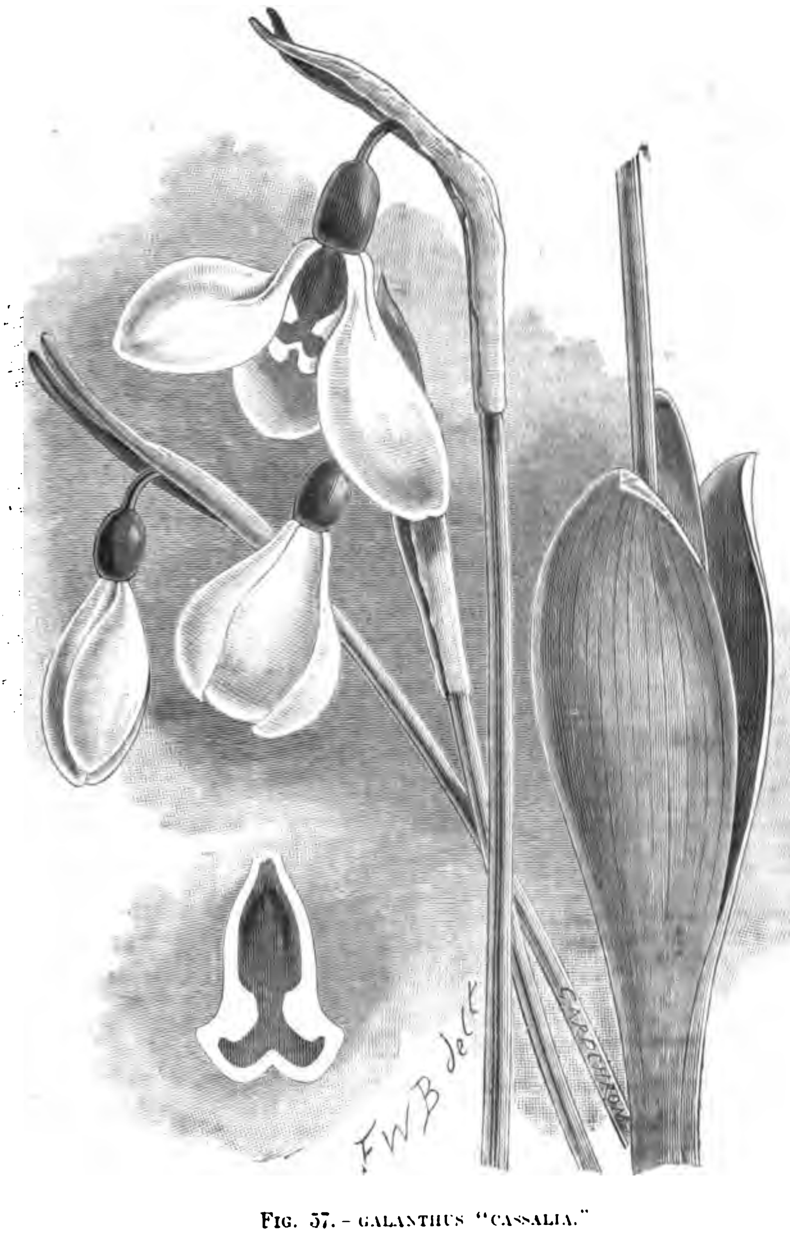


Fig. 57.—Galanthus "Cassalia."

GALANTHUS "CASSALIA."

This is one of the best, and most distinct of all the new Snowdrops from Asia Minor, and was sent to us from Smyrna by Mr. Ed. Whittall, who also sent the noble form of G. latifolius "Ikariæ," and more recently the giant form of G. Elwesii Whittalli, which, by general consent of all Snowdrop growers, will, as I hope, long bear his respected name.

G. Cassalia (fig. 57) grows a foot high, or more. Its broad foliage is very hoary-looking, being covered with a thick grey bloom, which is easily rubbed off by the fingers. The flowers are large and bold, but quite distinct from those of G. Elwesii in the blotch on the three inner perianth segments. As shown in my sketch, the basal blotch and the two apical dots, or deltæ, are conjoined, and not separate as in the last named kind. *F. W. Burbidge.*

SCOTLAND.

FORESTRY ABROAD AND AT HOME.

On February 20, an interesting lecture on the "Native Indian Forest Service" was delivered in the Conveyancing Class-room of Edinburgh University, by Sir Dietrich Brandis, K.C.I.E., LL.D. The lecturer, the place, and the subject-matter of the lecture, as well as the fact that the same gentleman, who is ex-Inspector-General of Forests in India, has undertaken to lecture for the Royal Scottish Arboricultural Society, at their Rooms, 5, St. Andrew Square, on Friday, the 24th inst., at 7.30, under the presidency of the Earl of Mansfield, gives the subject unique and timely importance. The subject of the lecture on Friday next will be "Pure Forests and Mixed Forests.'

It was a happy coincidence that though Sir Dietrich's subject on Monday at the University was the "Native Indian Forest Service," he began by sketching the progress that was being gradually made all over the world in the science and practice of forestry; and though it was a far cry from India to Edinburgh, he cited, in confirmation of the ameliorating influence of judicious planting on the world's landscape and climate, the remarkable changes that had come over for the better, the Heriot's Row and Queen's Street districts of Edinburgh, which were described in 1814, in *The Memories of a Highland Lady*, as an untidy wilderness.

Since then Edinburgh has become a beautiful town, and similar progress might be seen in all parts of India. The lecturer, however, said nothing to the effect that the planter had not yet added his last touches of grace, tints of colour, or powers of treating, to either Edinburgh or India. Few cities need more care bestowed on trees and shrubs, and none needs bright colours more as a relief to its endless lines and masses of grey that tower so high and spread so far and wide in all directions. But the lecturer hastened to remark, that enthusiastic foresters hoped that regular forest management might change the climate of India. While admitting that the improvements in the climate of India, with its extremes of heat, deluges of rain, and parching droughts, would be very desirable, and worth all their efforts as planters, the lecturer seemed doubtful whether very great changes of this sort were within their reach as foresters. There were, however, many smaller benefits which improved forest management might confer upon India. Happily, the forests, which covered 51,000,000 acres, were in the hands of the Government. They were the great sources of fuel, not only for home use, but for manufactures in the form of charcoal. To provide sufficient fuel for the peasantry, forests would have to be planted not only on the hills but also in the open country, and this might interfere with the grazing or other customs of the people. For instance, as more iron is made in Southern India, sufficient charcoal will need an extension of forest areas, and this would curtail the extent under grass for grazing. Such delicate questions are best settled by native forest officers on the spot.

Three classes of officers are needed for these great forest estates in India: 1st, protective officers, men of the locality, without any professional education; 2nd, executive officers, forest rangers; and 3rd, controlling officers, and the condition of such officers must be so improved as to induce natives of the first families to enter the Government foreign service. Doubtless the lecturer's object in this lucid division of labour is to interest all classes and castes in India in the progress and prosperity of the national forests, on which so much of the health and happiness of India depends. *D. T. Fish.*

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Potatos.—Large breadths of Potatos may now be planted, the Ashleaf and dwarf-topped varieties being planted on warm borders. It is good practice in the gardens to allow a space of 2 to 2¼ feet between the rows of the main crop varieties, and even the Ashleaf crops better if given 2 feet. As with other vegetables, Potatos need a change of seed occasionally, and of soil annually. If the land be in good condition it should be stirred with a fork, and the drills drawn at from 2 to 2½ feet apart according to the strength of the variety, and 4 inches deep. Although the quality of Potatos varies a good deal in different soils and seasons, I do not advocate the growing of a great many varieties, but prefer to grow a few good ones. Land which has been planted some time should be looked over occasionally, and a small quantity of soil put over the tops as soon as they appear. Where large plots are planted, the early and dwarfer-growing varieties should be set on one side of the plot, the future furrows between them being planted with early Savoys or other vegetable, a sort of inter-cropping that is of great use in small gardens.

Peas.—As soon as the plants are 2 inches high, draw some earth to them and put in the stakes, these affording some little protection against wind and frost, twigs of Laurel or Spruce stuck in between improving the protection. Those Pea-plants raised in small pots, in drills cut in turves, or in shallow boxes and troughs, should be kept cool preparatory to being planted on the south border. As soon as planted, let them be protected in the manner indicated. Peas may be sown at intervals of twelve days from the beginning of April till the middle of June, when the last sowing for the season is usually made, not omitting to sow twice during the present month.

Turnips.—A fairly good breadth of Extra Early Milan may now be sown in drills drawn 1 foot apart; most other varieties require 15 to 18 inches. As the first sowing may bolt, sow again in a fortnight Early Milan, Snowball, and Red Globe. The Turnip needs a soil rich in nitrogen, and for the summer crops the position should be as cool as can be found. Early Milan is remarkable for its earliness, and it is a variety of fairly good quality when used young; but its season is brief, like the Flat Dutch, and a good, white-fleshed, more-enduring variety should be sown at the same time.

French Beans.—Those being forced in a hot-house should not have a lower temperature than 60° by night, with a rise of 10° to 15° with sunshine, nor should the plants lack water at the roots, nor liquid-manure at alternate applications. Hard water is injurious to the French Bean, but liquid-manure alternately afforded with water seldom fails in producing a satisfactory crop of Beans and healthy leaves. Syringe the plants early in the afternoon, when shutting up the houses, pits, or frames. Sow seed at intervals, according to the demand and the available means for growing the plants.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Helleborus niger and other species.—Those who wish to increase their stock of these plants should, now that the flowering season of most species is past, and growth is commencing, take up each clump, wash every bit of soil from the roots, and divide them with a knife, removing all of the remains of old flower-stems. Having selected a piece of ground facing north, or at the least somewhat shady, trench it 2 feet deep, placing a thick layer of rotten farmyard manure at the bottom of the trenches. When it has settled a bit, make it firm by treading it regularly all over, and plant each Hellebore crown 18 inches apart. It is best not to lift the whole stock of plants, but a few plants annually, as the plant requires to be thoroughly established before it will flower freely. They should not be allowed to become dry at the roots.

The Pruning of Roses.—The Rose bushes and standards are, owing to the mildness of the season, a fortnight earlier in starting into growth, and they will have to be pruned so much earlier. It is advisable that each standard or bush be cut back in accordance with its vigour; for example, strong-growing varieties, such as Captain Christy, Mrs. John Laing, Madame Isaac Pereire, &c., should have the small shoots thinned out, the strong growths shortened back to six buds, and those of only moderate growth to two buds. Bush Roses, when budded on the Manetti and seedling Briar, should be kept to six strong shoots, left 1½ to 2 feet in length, these being pruned in the manner advised for standards, shoots being left according to the strength of the same, with four, six, or eight buds each; and all probably flowerless and weak shoots removed without leaving any snags. Suckers, that is, shoots coming up from the stock, should always be pulled or dug up, not cut off, when young, but if own-root Roses throw suckers, these ought to be retained.

Pillar Roses are very ornamental when in flower, but they should not be planted in great numbers unless it be in a Rose-garden proper, as flowering but once in the year, they are not nice-looking at other seasons. The plants when planted should be afforded rich loam, and be fed liberally afterwards, they then give an abundant harvest of bloom. Turner's Crimson Rambler, Alister Stella Grey, Fellemberg Noisette, W. A. Richardson, L'Idéal, Bardon Job, Aimée Vibert, and the Penzance Briars, are excellent as pillar Roses. I have had them fastened to iron supports, but larch-poles with the branches shortened to a foot are better. The poles should be 12 feet high, and the Rose-shoots trained round them. The side-shoots on last year's wood should be shortened back, and all shoots from the root allowed to grow, and in time they will replace the older stems which will have to be removed. The Penzance Briars are beautiful when allowed to grow wild similar to the Dog Roses of our hedges. Pillar Rose shoots should be cut at various heights, from 2 to 12 feet.

China Roses.—These compact growing species and varieties of Roses, sometimes called monthly Roses, are very suitable for forming beds and edgings to beds of other Roses, and they may be had in bloom for about seven months in the year. It is advisable to prune them as soon as the first flowers have passed. The strongest shoots should be cut over regularly, leaving them from 6 inches to 1 foot long, and retaining as many of the good shoots as possible which come from the base of the plants. The later growth will keep up a long succession of bloom. Archduke Charles, Cramoise Supérieur, Fabvier, and Red Pet, with brilliant crimson flowers; Madame Breon and Queen of the Belgians, rose and flesh-coloured, are excellent varieties.

Tea Roses.—These attain great perfection when grown on a north border, or on an aspect where, during frosty weather, sunshine does not reach them much. For several years Madame Van Houtte, Madame Lambard, Madame de Watteville, Madame Willermoz, and Catherine Mermet, have grown here unprotected, and trained on a wall with a northern aspect, and produced blooms finer in texture and colour than those grown on a southern aspect with protection. These Roses only require to have the thin and weakly wood cut out.

Tender Annuals.—Seeds of Asters, Stocks, Phlox Drummondi, Zinnias, Salpiglossis, Sunflowers, golden Pyrethrum, Sweet Sultan, Tagetes, Scabious, &c., should be sown, in pots, pans, or boxes, and placed near the glass in cold frames; other annuals are best when sown in the open ground towards the end of the month.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Lilies.—The Lily bulbs growing in pots plunged in beds of coal-ashes, &c., should now be examined weekly, taking out of the ashes those which have made growth of an inch or two above ground, and placing them in a cold frame. When the Lilies are well rooted, they may be introduced to gentle heat in numbers as may be required. By placing a batch under glass at intervals of ten to fourteen days, and allowing the latest to remain plunged in the open air until the flowers are on the point of opening, the flowering season will be prolonged until towards the end of the summer. These remarks apply mostly to Lilium longiflorum var. Harrisii.

Herbaceous Calceolarias.—If aphis be noticed, let the plants be fumigated lightly, and repeat the operation till none is seen. If extra large Calceolaria plants are required, the main flower-stems must be pinched once as soon as they appear, and a shift into pots one size larger afforded. Such plants will flower later than the smaller plants, and the heads of bloom will be much bigger.

Show and Fancy Pelargoniums which have not been shifted into their flowering-pots should be attended to in this respect forthwith. In the case of large plants, the shoots must be tied out with green-tinted carpet-thread or fine raffia. The ties should fit loosely round the shoot, and be passed under a wire or piece of strong twine fixed below the rim of the pot, and the shoots carefully drawn in the required direction. The shoots are easily broken, and much care is necessary that not too much strain is used at one time; but if necessary, the plants should be gone over several times, bringing down the shoots a little at a time.

Phyllocactus.—Such of the plants as have been kept comparatively dry during the winter will now be making growth, needing light applications of water, and on fine days an overhead sprinkling with the syringe. Even in the season of growth these plants should not be afforded water unless the soil has become dry. Applications of weak liquid-manure may be afforded occasionally during growth and flowering. The drainage should be in a perfect condition. Propagation by means of cuttings may now be carried out, using cladodes of last year's growth 4 or 5 inches in length, and placing them in sandy loam in well-drained small pots, which may be stood on a shelf in the stove, scarcely any water being required till rooted beyond what reaches them from the daily syringing of the house.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Cœlogyne pandurata.—The genus Cœlogyne contains many interesting species, but none can compare with pandurata in size or in the remarkable colouring of its blooms. When established and placed in a suitable position, few Orchids grow so readily, but to flower it regularly requires just the right kind of treatment at just the right time. The plants are now in a suitable condition for removing old or adding new material to the growing rhizome. My method, which has the merit of having good results, is to grow the plants on teak rafts, so that the rhizome travels across the bars, and to fasten it down to about 3 inches of the wood, and beneath it place a few large crocks, on which lay some peat and sphagnum-moss in equal proportions up to the base of the rhizome, and about 4 inches on each side; do not press it, but simply place it alongside, and as the rhizome advances over the edge of the raft, another piece has to be fixed to the original one, and the process repeated. The best position for it is the shady side of the East Indian-house; and if there is no open stage, let the rafts be raised upon Orchid-pots, so that the air may circulate amongst the plants. From now onwards afford water freely till the bulbs are fully grown. A partial rest should be given by keeping the plant on the dry side for fourteen days. Our plants usually make two pseudo-bulbs on each rhizome each year, the second one never flowering, and it is after this second one is completed that no more water is given than will keep the rooting materials moist, and in the depth of winter it should be allowed to remain unsupplied with water for a week at a time. The spikes are now appearing in the centre of the new growths, and nothing can be prettier than a spike with a dozen or more of its green and black flowers. No insect infests or harms the plant, but an occasional sponging of the leaves is necessary to free them from dust.

Cœlogyne asperata is another shy flowerer, but if subjected to the same kind of treatment as that described, it seldom fails to bloom. It should be planted in a well-drained perforated pan, using one-third each of fibry-loam, peat, and sphagnum-moss for compost, and sprinkling in a quantity of very small crocks during the repotting. It should occupy the same kind of position as C. pandurata.

Cattleya labiata and C. Gaskelliana. — These species having started to grow early this season, much care will be called for in order to prevent hasty development. No doubt it is the propensity to start into growth before there has been complete restoration of strength, which curtails the life of most Cattleyas grown in gardens, and we should endeavour to enforce rest so long as it is not injurious or contrary to the nature of the plants. To this end, a mild temperature, and a moderate degree of dryness at the root and in the atmosphere should be afforded, taking care that the pseudo-bulbs last made do not shrivel to any great extent. Cattleya Trianæi benefits by a long and thorough rest after the flowering is over, and even when new growths appear no difference in the treatment should ensue before the leaves are partially developed.

Odontoglossum citrosmum.—Our plants are now sending up their flower-spikes, rendering it very essential that the baskets or other receptacles in which they are growing should be wetted by immersing them in water for a minute or two, and water should be afforded often enough afterwards to keep the materials moist.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

The Fig-house.—Those Figs which are the earliest in point of growth will require close attention in regard to water at the root, as any lack of moisture in the soil may result in the dropping of the fruit. Endeavour should be made to afford moist surroundings without syringing the foliage, which leads to the ripening fruits being injured. The object with these early trees is the development of an early crop of fruits. A successional crop will result from suitable pinching of the current year's shoots when they have made from four to six leaves. Pinching tends to the formation of fruits, and preserves a well-balanced head. The use of artificial or other manures must be governed by the actual condition of the trees, and if there is ample foliage, but few fruits, root-feeding must be given up; on the other hand, if the crop of fruit is abundant, and the pots are filled with roots, and the growth is moderate, then manures will do good if applied in weak doses. The ventilation should be regulated in accordance with the state of the weather, but no opportunity should be lost of admitting fresh air to the house. A night temperature of 70° will be ample, with a rise by the aid of sunshine during the day to 85°.

Cucumbers in Frames.—Where a Cucumber-house or pits do not exist, or are not available, the Cucumber may be grown in dung-heated frames and pits during the summer and autumn months. The beds to afford bottom and top-heat may consist of fresh stable litter and tree-leaves of a lasting nature, as Oak, Beech, and Chestnut, which should be mixed together and thrown into a heap to induce fermentation before setting to work to make the bed. In quantity there should be enough to make the required hot-bed of an average height of 3½ feet. When the rank steam has been got rid of by the repeated turnings, the bed may be carefully built up, keeping much of the strawy litter towards the sides of the bed. The bed, if compactly made, that is, the materials are well mixed and made quite firm, will not get violently hot and then decline just as quickly, but will afford a lasting warmth, which warmth may be maintained for four months by the aid of dung linings. The bed should be made 1 foot bigger than the frames all round, and should be kept in form by having stout stakes driven into the ground at each angle. The linings may be put round the frames on the top of the bed at first, and later they must be built up from the ground. Each light of an ordinary frame will accommodate two plants, but for small frames one plant per light is sufficient. Under each light place several wheelbarrowfuls of rich soil in the middle in the form of a low hillock, additions being made later in such a manner as to make a level flat bed. Do not plant out the Cucumber plants until it is ascertained that the bottom-heat has declined to 85°, and the soil to 80°. Having set out the plants, keep the frame-lights as close as it may be safe to do, but as there is usually a good deal of hot ammoniacal steam for the first ten days, a chink of air should be afforded at night. If in the early morning pearly drops hang on the edges of the leaves, that is a good sign, and the plants will make fast progress, and will need no dewing over till 3 P.M., and perhaps not even then if the day is wet or dull. In sunny weather shade must be employed so long as air is afforded, and a light sprinkle of the leaves afforded at closing time. The treatment of the plants is in other respects similar to that given to Cucumber plants in houses. A test-stick or plunging-thermometer should be used to ascertain the degree of heat in the bed of soil, which should be kept to about 80°, by the means indicated above. To obtain straight fruits of varieties that grow to a great length, boxes or glasses should be used. The management in ordinary brick pits is the same.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Grafting.—Where this operation is to be carried out, either as a means of working a variety on to one whose fruit is less valued, or the rejuvenescence of an aged tree, the materials required by the grafter should now be prepared. First there is the clay, which in this country is commonly used for covering the point of union, to be mixed with short chaff or horse-droppings, and well "pugged" with a mallet so as to render it pliant and homogeneous. In place of horse-droppings or chaff alone, fresh cow-dung may be used alone or in conjunction with these, but not to exceed altogether the bulk of the clay. The whole, when fit for use, should be like stiffish mortar, and till the work begins, it should be put in a cool shed, and the heap covered with litter. Wait till the weather becomes milder before commencing to graft, and take Plums and Cherries (sweet) first, following on with Pears and Apples. When wood-buds on the branches burst, grafting may begin. The shoots which will supply the scions will have been laying in the earth on a cold border, and consequently they will be less forward than the growing stocks, and here they must remain till wanted.

Methods of Grafting. — A common method of grafting, and that adopted by nurserymen, is whip or tongue-grafting, the simplest and best form for all sorts of small stocks and scions. The scion and stock should correspond very nearly in diameter, the length of the first being 5 to 7 inches, and it must be furnished with two or three buds, two of these being above the junction of scion and stock. Having cut off the latter near to the ground or the spot desired, remove a thin slice of wood and bark from the stock about 3 inches long on the side where the upward cut was made in beheading it, and cut a similar slice from the scion, leaving a slight shoulder to rest on the top of the stock. Make a downward incision in the upper part of the stock about half an inch deep, and a similar upward cut in the scion, the one fitting into the other, and making a firmer join than it is possible without it, helping also to hold them together till secured by bast or worsted. The rind of the scion and stock when thus adjusted should meet together on both sides if possible; then proceed to bind them together, drawing the material moderately tight, but not so as to injure the rind of either. The last operation consists of "claying" the grafts. First, rub a little in and on to the matting, in order to exclude the wet, and then take a ball of clay, and gradually spread it round the graft, but not covering the top bud, so as to form an elongated egg-shaped mass, tapering off nicely at the top and bottom. If the fingers be dipped in wood-ashes or fine sand, the clay will not stick to them, and the moulding into shape will be the more easily done. Other methods of grafting will be mentioned in my next Calendar.

THE APIARY.

By Expert.

Condition of Stock.—Bees have from abnormal causes dwindled a good deal, and are therefore less able to keep their brood-nest warm than they were a month ago; and this, too, at a time when they naturally have commenced brood-rearing. Occasional cases may discover themselves during such hasty inspections as we have referred to where dysentery has set in, necessitating a partial transfer to clean, wholesome combs and a dry hive; but only in a very bad case should we do more than give the cake of soft warm candy.

Loss of Queens.—Queenlessness may be suspected where the bees exhibit unusual restlessness, but if they survive in any considerable strength we would prefer to leave them as they are until early in March, when the feeding-bottle may safely be used as an inducement to egg laying, should there chance to be a still-laying queen, or a frame with eggs may be given from some other stock. This would not only betray their actual queenlessness, by showing queen-cells a few days later, but quicken and preserve the bees, and supply them with the young bees necessary to the easy and successful introduction of a strange queen a few weeks hence. Entrances should be cleared of dead bees when such are observed. Those stocks will be best off which require no attention at all; all others must be handled with as little disturbance as possible. One of the worst habits a bee-keeper can acquire is that of constantly pulling bees about whenever the slightest excuse offers itself. Sometimes, of course, an inspection is imperative, and should not be delayed if at all possible. When any unusual appearance is noticed in a particular hive, say when a quantity of dead bees are seen on the floor-board, or no bees at all show themselves when other stocks are busy, an immediate examination must be made, and the necessary steps taken. So long, however, as the bees are seen flying when occasion offers, all may be assumed to be going well, and the less the bees are interfered with the better.

Seasonable Hints.—Plenty of indoor work, which should not be neglected, will now be found to occupy the spare hours of the evening. As spring advances time becomes more precious, and everything which can be got ready now will save time in the future. Sections, supers, and frames may be fitted with foundation ready for use, and stowed away till wanted. Provide a few frame-holders, i.e., rough boxes without top or bottom, made of half-inch stuff. They must be of the same dimensions, as insides of the hives used are very useful for holding frames fitted with full sheets of foundation, or when extracting.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Mar. 21	Truro Show of Daffodils (2 days): Deputation from the Royal Horticultural Society.
WEDNESDAY,	Mar. 22	Show of Torquay Gardeners' Association.
SATURDAY,	Mar. 25	Royal Botanic Society, Meeting.

SALES.

TUESDAY,	March 21	The "Waddesdon Manor" Collection of Orchids, by order of Miss Alice de Rothschild, at Protheroe & Morris' Rooms (two days).
FRIDAY,	March 24	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 5 to March 11, 1899. Height above sea-level 24 feet.

1899. March 5 to March 11.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Temperature of the Air. At 9 A.M. Wet Bulb.	Temperature of the Air. Day. Highest.	Temperature of the Air. Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	Temperature of the Soil at 9 A.M. At 2-feet deep.	Temperature of the Soil at 9 A.M. At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 5	N.N.E.	35·8	33·3	41·5	29·5	...	38·3	40·2	43·6	26·3
Mon. 6	S.S.E.	39·4	34·5	44·9	23·9	...	36·7	40·1	43·3	16·0
Tues. 7	S.S.W.	37·8	32·4	50·3	22·9	...	36·5	39·9	43·5	15·0
Wed. 8	W.S.W.	40·4	38·6	50·2	34·9	0·08	37·4	39·9	43·2	23·2
Thu. 9	S.S.W.	41·0	39·3	49·1	38·5	...	39·9	40·3	43·2	31·8
Fri. 10	W.S.W.	41·4	38·8	53·3	29·5	...	39·3	41·1	43·2	20·2
Sat. 11	N.N.W.	41·8	41·6	53·1	32·6	...	40·2	41·4	43·2	24·5
Means...	...	39·7	36·9	48·9	30·3	Tot. 0·08	38·3	40·4	43·3	21·6

Remarks.—The week ending March 11 was remarkable for clear, bright, spring-like weather. Once only was there any rain, viz., on the evening of the 8th.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—42·6°.

Actual Temperatures:—

London.—*March* 15 (12 P.M.): Max. 60°; Min. 40°.
Provinces.—*March* 15 (6 P.M.): Max. 59°, W. Ireland; Min. 42°, The Scaw.
Foggy, mild, damp.

The Daffodil Show at Truro.

The show of Daffodils and other spring flowers which is to be held at Truro on the 21st and 22nd inst., is of greater importance, and may have more far reaching consequences, than local exhibitions usually have. It is on this account, we presume, that a deputation from the Royal Horticultural Society has been told off to visit the show. As this involves a journey of about 280 miles, and an absence of at least three days, this is no light matter. We do not suppose that the Council would esteem the difference even between Magnicoronatæ and Parvicoronatæ as worthy of such a sacrifice if there were not some more important aims to be attained. Those who have the opportunity, as we have, of seeing the enormous quantities of flowers which reach the adjoining market from the South of France and elsewhere, a considerable proportion of which might have been grown here, must welcome the signs that our own cultivators are beginning to see that an opportunity is before them. The Scilly Islands furnish an excellent illustration in point. Thanks to the initiative and fostering care of the late Mr. Augustus Smith, and of the present Mr. Algernon Dorrien Smith, a brisk and profitable industry has sprung up on what, for our purposes, might have been called barren rocks. Now, the dwellers on the mainland are also waking up to a sense of the possibilities of the case, and endeavouring to supplement the tottering resources of agriculture by the more hopeful capabilities of fruit and flower-farming, and the Royal Horticultural Society very properly lends its aid and influence in the good cause.

The activity in Truro has been largely stimulated by the interest and energy displayed by the Hon. John Boscawen, who bears a name remembered with honour in the horticultural world. The amateurs of the county who are enthusiasts, have supported their secretary, and stimulated the professional growers. The Truro show will therefore be, in all probability, amply worth seeing. A journey to that part of Cornwall at this season is like going to the Riviera, whilst in some respects, as in the glorious masses of Rhododendron, Cornwall has the advantage.

Twenty-three classes are allotted to the exhibition of the several kinds of Daffodil in groups or otherwise, the premier prize being for forty distinct varieties of Daffodils. Spring flowers comprise Anemones, Polyanthus, Wallflowers, Tulips, Violets, and what must surely render the show magnificent, Azaleas, Camellias, and other outdoor shrubs, as well as Rhododendrons, Sikkim and other.

An article in the *Cornish Magazine* for November last gives an excellent idea of what Cornish Daffodils are. The growers aim at earliness, which, of course, is desirable; size, which is of minor moment, and may, if excessive, be objectionable; and colour, which Cornish light and air develop to a marvellous extent.

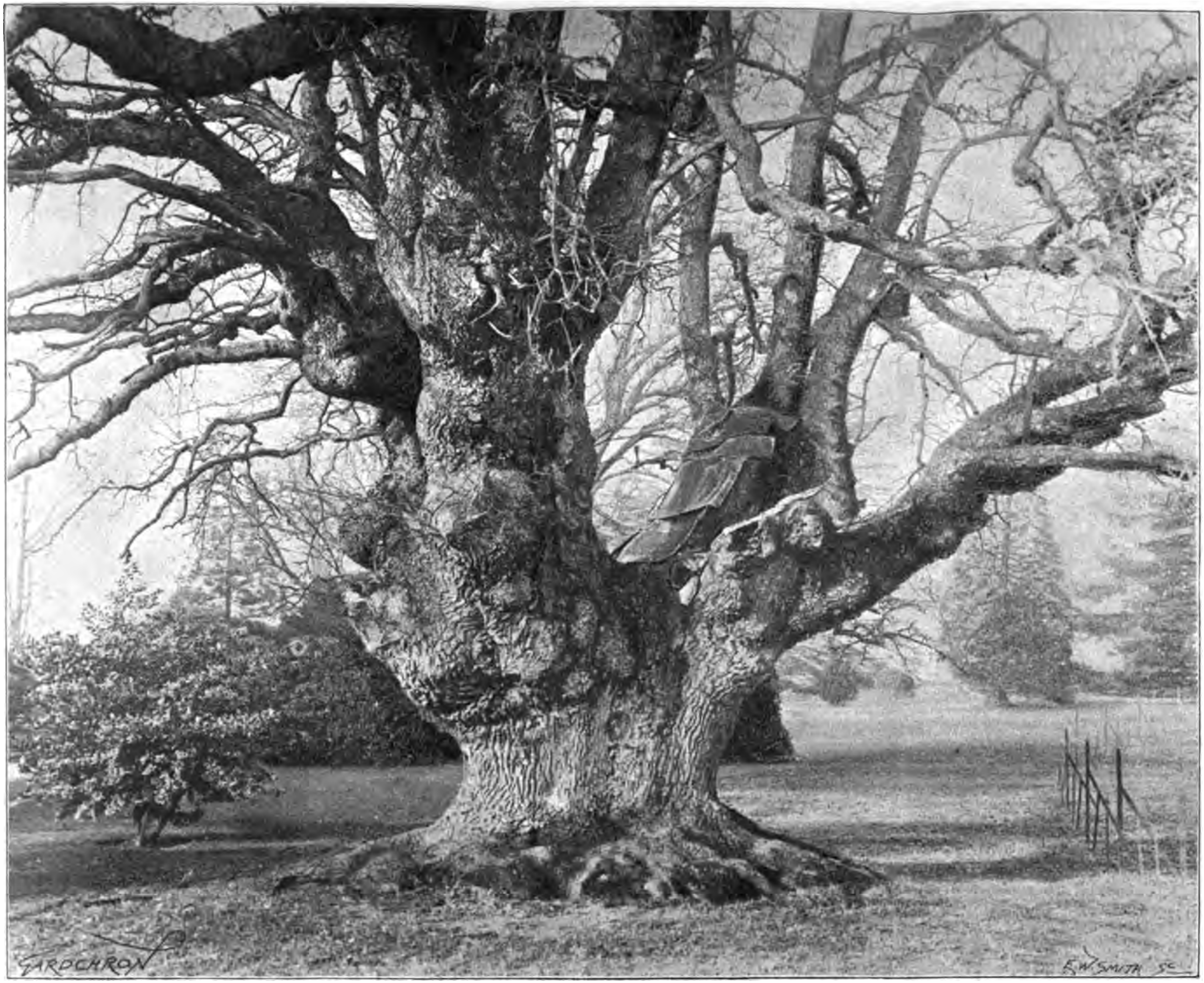
"For magnificence of [Cornish Daffodils], grown to perfection on a large scale, I have," writes Mr. Engleheart, "seen nothing to equal Mr. Andrew Lawry's flower-farm in Mount's Bay; the view of acre upon acre of the silver Poeticus ornatus, and the great waxen clusters of Grand Monarque stretching under the brilliant spring sky of Cornwall far away towards the blue bay, and the ancient mount of St. Michael upstanding in the sunlight, would need the idyllic gift of a Theocritus to describe worthily."

As giving some idea of the extent to which the cultivation is carried, Mr. Engleheart tells us that Mr. Dorrien Smith alone forces a million Poeticus ornatus annually! In short, then, looking to the opportunities of the Daffodil trade alone, every foot of suitable soil in Cornwall must steadily rise in value.

We have said enough to justify what we have said concerning the importance of the Truro show. Let us turn to another aspect of the occasion. Cultivators may do much, but their powers, after all, are limited by the "environment," as the scientific slang of the day denotes the conditions under which a plant has to live. With the careful hybridist the limitations are not so soon reached. The mere cultivator is relatively soon pulled up short—so far and no further can he go; but the possibilities of the judicious hybridist are much wider in their scope. There is no telling what new beauties may be in store for us. True, many (perhaps most) of the crosses raised may, for cultural purposes, be worthless, or no better, if so good, as the parental forms; but many of them will grow under conditions where others will not, and they are all of value to the scientific botanist. Amidst the crowd of undistinguished forms, one is pretty sure ultimately to blaze forth superior to anything before known. This is no enthusiast's dream. Has it not been already proven? Among the workers in this field we have had our Leeds and our Backhouse, and now we have among us one on whom the mantle of the late Dean Herbert has fallen. George Herbert Engleheart bears noble names, recalling at once the saintly George Herbert and the Dean, sagacious observer and skilled experimentalist—the forerunner of Darwin in many points, one whose work was hardly appreciated to the full by the generation in which he lived. Mr. Engleheart, as our readers well know, has taken up Herbert's work, has confirmed many of his assertions, and extended his observations, with what results the visitors to the spring shows in London and elsewhere can judge for themselves. At Truro, there will be no more competent critic than he, no one who is more completely master of his subject than he. Many a time and oft, our readers have had the benefit of his experience in these columns, and they will, we are sure, feel no slight interest in seeing the portrait of one to whom we, and they, in greater degree than they know, are under such obligations (see p. 163).

Let us bring this note to a close by quoting from the magazine before-mentioned two extracts from Mr. Engleheart's pen, which serve to show the spirit in which he is working:—

"This fearlessness of our rough English spring—March is 'the roaring moon of Daffodils'—has made it pre-eminently an English flower, and the hands of Englishmen have fashioned it to its present beauty. Over two and a half centuries ago Parkinson had anticipated Mr. Peter Barr in employing Pyrenean 'root-collectors,' and describes some hundred kinds of Daffodil. The magic art of cross-fertilisation was then undreamed of, and the possibilities latent in Parkinson's store awaited the coming of Herbert, first Dean of Manchester. Herbert, who in one side of his versatile genius, was something of a pre-Darwinian Darwin, published in 1843, the results of many years' experiments at his Yorkshire rectory of Spofforth, and demonstrated that the short-crowned Narcissi of the reputed 'species' N. incomparabilis are really hybrids between the trumpet Daffodils and the pheasant-eye, or N. poeticus. The first to avail themselves of this discovery, of such paramount importance for the enrichment of the spring garden, were Messrs. Leeds, of Longford Bridge, near Manchester, and Backhouse of Walsingham. By effecting this cross in variety, and inter-crossing the resultant seedlings with other flowers and one another, they obtained the host of lovely forms now in common cultivation. These, again, are being sedulously used by the hybridist for the further evolution of size, form, and colour. The subsequent workers in the same field have all been Englishmen. A few fine Trumpet Daffodils have been raised in Holland, notably the very beautiful white Madame de Graaff, by Messrs. de Graaff, of Leyden, but these seem to have been chance seedlings, and it is a curious fact that the Dutch, reputed quick to discern any avenue of profit, have never deliberately taken in hand the hybridisation of the Narcissus. The best Polyanthus Narcissi or Tazettas are, it is true, of Dutch origin, but these do not rank in general esteem or money value with other Daffodils, and have scarcely been improved for a century. Leeds sold his entire collection for a hundred guineas, and the sum was thought so large that it was found by a small company of purchasers. Twenty times the amount would now be thought a small price.



[From a Photograph by H. Dunning, Usk.

THE GREAT OAK IN THE PLEASURE-GROUNDS AT BRYNDERWEN, NEAR USK, MONMOUTHSHIRE.

At the death of JOHN HORSEFIELD, the Lancashire weaver, who raised the fine white and gold Trumpet Daffodil bearing his name, the few bulbs were sold by auction for eighteen pence a piece—*ic vos non vobis.*"

"Should a seedling ever attain to full red in both cup and petals, it would command an enormous price, but artistically considered, it would be somewhat of an outrage. The most disdainful of all Daffodils in its rejection of red is the dainty little N. triandrus, with pale, clustered, Cyclamen-like blossoms, as common in parts of Portugal as the Primrose in Cornwall, but practically unknown in England until fifteen years ago. From this, crossed with the larger garden kinds, I have a series of perfectly lovely hybrids with pendent Fuchsia-like flowers of the most refined cream and ivory-whites. But cross it as you will, with the most brilliant of the red-cupped sorts, the seedlings perpetuate its own simpler apparel, and never show a trace of red.

"A race more delightful to myself than perhaps any other are the Leedsii varieties, intermediate between N. poeticus and the white trumpets. It is remarkable that in this cross the former parent effaces the weakliness of the latter, and supplies a diversity of vigorous and very lovely white flowers. In the cups of some of these a quite exquisite range of colouring occurs, which can be only imperfectly conveyed by such words as salmon, citron, pricot. Recent seedlings, perhaps, foreshow the oming of true pink in the Daffodil. To appreciate hese delicate tints, the flowers should be studied n the late afternoon, when the sun is off them, nd they seem to create a still, magical atmosphere bout themselves."

THE BRYNDERWEN OAK.—As a Supplement to ur present issue, we present our readers with a hotographic illustration of a noble and magnificent ak upon Major-General GILLESPIE's estate, near Usk. A description of the locality and the measurements of the tree itself have been obligingly urnished us by Major-General GILLESPIE as follows:—"The house, grounds, and estate of Brynderwen are named after this tree. The literal translation of Brynderwen in the Welsh language being 'Oak on the Hill,' (Bryn) Hill, (Derwen) Oak. The house is built on a low range of hills which run parallel to the river Usk. The tree is 100 yards o the south-east front of the house. The hill range s a Silurian upheaval, and runs from north-east to outh-west, commencing about half a mile north of rynderwen, and extending nearly to the town of sk, some two and a half miles south. Some 2 feet below the surface there is a fine stratum of ravel, and all Conifers grow here in the greatest alth and luxuriance. Oaks flourish splendidly, d the slopes of the low range, and the banks of e river are noted for the magnificent growth and e of the Beech trees, many of which are well orthy the artist's brush. The back of the house es the river Usk some 80 yards distant. From e windows of the house the salmon can easily be scerned when on the move; and a magnificent norama of the Welsh mountains, including the gar Loaf, Blorenge, and Pontypool hills bound e horizon. The following are the measurements the Brynderwen Oak:—Circumference of bole at ound-level, 51 feet; trunk, at 4 feet from the ound, 22 feet; circumference of gnarled parting boughs from the trunk 6 feet 6 inches from the ound, 35 feet." The photographs were taken by r. G. DUNNING, of Usk, Monmouthshire, a well own local photographer.

LINNEAN SOCIETY: MARCH 2.—Dr. A. GÜNTER, F.R.S., President, in the chair. Mr. G. C. UCE, F.L.S., exhibited and made remarks on ecimens of Dianthus gallica from Jersey. Mr. C. DRUCE, F.L.S. read a paper on the reported urrence in Ireland of Carex rhynchophysa, and re reasons for believing that Carex rostrata var. ifolia had been mistaken for it. Typical specians of both were exhibited, and also a coloured wing by Mr. N. E. BROWN, A.L.S., of one of the plants collected by Mr. LLOYD PRAEGER near Mullaghmore Lough, Armagh. Some further remarks were made by Mr. C. B. CLARKE, more especially with reference to the descriptions of plants believed to be new to the British flora. Mr. EDWARD STEP, F.L.S., read a paper on the fertilisation of Glaux maritima. After examining some hundreds of flowers gathered along the coast near Port Scatho, Cornwall, he had come to the conclusion that the flower is protogynous. When open, the calyx-lobes at first separate but slightly, affording only a narrow entrance. The curvature of the style is sufficient to bring it within the fold of a calyx-lobe, from which the stigma projects so as to be in the way of any insect that visits the flower for the liquid that exudes from the ovary and base of the style. When the yellow pollen is shed, the style is either quite erect, or retains its original bend sufficiently above the anthers to make self-fertilisation probable. Owing to the lowly habit of the plant, and its customary crowding in with sea-sedge and grasses, it is not an easy one to watch. Doubtless it is often fertilised with its own pollen by the agency of flies and other insects; but from the position and precocity of the stigma, Mr. STEP considered that cross-fertilisation is quite as frequent. He was consequently unable to agree with Mr. HENSLOW (*Trans. Linn. Soc.*, n.s., Bot. i., 1880, p. 377, pl. 44, fig. 35) as to self-fertilisation in this plant, believing his conclusion to have been drawn from the examination of an abnormal specimen. Dr. JOHN LOWE, F.L.S.:—The flowering and fertilisation of Araujа albens, G. Don.

PARIS EXHIBITION OF 1900.—The total amount of space, including gangways, at the disposal of British exhibitors in the horticultural section, shown on the plan given in our last number, amounts to 3527 square feet.

THE SOUTH-EASTERN AND CHATHAM & DOVER RAILWAYS.—A petition extensively signed by the principal receivers of fruit in Covent Garden Market has, the *Times* is informed, been forwarded to the London County Council protesting against the proposed amalgamation of these companies, and pointing out that the combination would be detrimental to the interests of the growers in Kent. It is stated that "during the past few months fruit has been delivered in the market from six to twenty-four hours late without comment; this with the soft fruit will simply mean ruin to the fruit-grower. The amalgamation will be very serious to all interested in the fruit trade, as no benefit is likely to accrue by the proposed fusion."

—— At a large and influential meeting of Kentish fruit-growers and farmers, held at Maidstone last week, the amalgamation of the South-Eastern and Chatham & Dover Railway Companies was discussed. Mr. LENEY (chairman of the Maidstone Farmers' Club) stated that Mr. WILLIS had assured him that the companies were prepared to give the Kent farmers every facility if they would only say definitely what they wanted. The following resolution, proposed by Mr. CORNWALLIS, M.P., was passed:—"That no rate at present in existence on either line for the conveyance of fruit or other agricultural produce should be raised, and that a clause should be inserted in the Amalgamation Bill to this effect. That this meeting also draw the Companies' serious attention to the late delivery of fruit by them, and the great difficulty experienced in obtaining a prompt return of empty baskets."

—— A deputation consisting of members of Parliament, representing constituencies served by the South Eastern and Chatham Railway Cos., and representatives of fruit-growing and other important industries, waited upon Mr. COSMO BONSOR, M.P., chairman of the managing committee of the joint lines, at Charing-cross Hotel, recently. The deputation, which was introduced by Sir WILLIAM HART-DYKE, M.P., included Messrs. GEORGE WYNDHAM, M.P., LAURENCE HARDY, M.P., A. S. T. G. BOSCAWEN, M.P., J. PENN, M.P., A. H. A. MORTON, M.P., J. H. DUDLEY RYDER, M.P., HENNIKER HEATON, M.P., Colonel WARDE, M.P., and Lord CRANBOURNE, M.P. Sir WILLIAM HART-DYKE said the deputation would like to hear the policy proposed to be adopted by the joint lines in the event of the Bill for amalgamation receiving the sanction of Parliament. [It has since passed the second reading.] Two years previously the then chairman of the South Eastern Railway made certain very satisfactory promises with regard to rates for agricultural produce, &c., but said it would be impossible to give effect to such promises until a working arrangement had been arrived at with the Chatham Company. Mr. COSMO BONSOR, in reply, assured the deputatien that the pledges given by Sir GEORGE RUSSELL should be loyally fulfilled by the managing committee, and the key to the reform which the deputation were so desirous of effecting was the provision of new capital, and that capital, so far as the Chatham Company was concerned, could not be provided except by means of the present Bill, consequently the rejection of the measure would mean that the reforms referred to must be indefinitely postponed, whereas the passage of the Bill would ensure their being carried out. He also gave the deputation assurances with regard to workmen's trains, and other matters. Sir WILLIAM HART-DYKE then thanked Mr. COSMO BONSOR, and the deputation withdrew.

CAUTION TO ADVERTISERS.—The Publisher desires us once again to warn advertisers as to the tricks and devices of those who seek to obtain money from them under the promise of obtaining situations for them. One such epistle is before us, dated from 16, Air Street, Regent Street, London (a newsvendor's shop). In it the writer makes mention of a nurseryman at Highgate, who has also four retail shops at the West End, and contracts for the supply of flowers, fruit, and forced vegetables to all the principal West End Hotels. The name of the nurseryman with this extensive business is quite unknown to us, and finds no place in the Horticultural Directories, so far as we can see. A "security" of £2 is asked of the advertiser for an introduction to this desirable employer. We trust no advertiser will be so unwise as to accede to the suggestions of anyone who makes such a demand.

A NEW HORTICULTURAL PAPER.—Messrs. Cassell & Co. announce a new weekly penny gardening paper, to be known as *The Gardener*. The first number will appear next week.

CAPE FRUIT.—The *Tantallon Castle* has arrived from the Cape with 792 boxes of Grapes, 63 of Peaches, 16 of Pears, 87 of Plums, and 5 of Nectarines. The Plums once more proved of excellent quality, and quickly sold at high prices. There seems to be a good market here for this kind of fruit, and it is to be hoped that we may be favoured with larger supplies next season. Of the Black and White Grapes most were in good condition, securing good prices—the black as usual fetching the higher figure. The Pears, it may be noted, were poor in quality, and hardly worth selling. The Nectarines were not put on the market. The Peaches were first-class fruit, and sold at good prices.

HYBRIDISING.—Our energetic American contemporary, *American Gardening*, of New York, announces in its issue of March 4, an important prize offer for articles on hybridisation. In all, thirty pounds (£30) will be given in three prizes, of fifteen, ten, and five pounds respectively. The offer is contained in the following words: "For the best paper on hybridisation, treating the subject from the point of view of its value to science and to horticulture. No special group of plants is specified, the writer being expected to give, in concise form, a general treatment of the subject, and to treat it from an historical as well as from a practical and scientific point of view. No paper to be under

1000 words in length, nor to exceed 5000 words." Papers in the competition must be sent in to the Editor, *American Gardening*, 136, Liberty-st., New York, U.S.A., on or before April 15 next.

SPECIES OF ROSA WHEREWITH TO EFFECT CROSSES.—It is stated in our contemporary, the *Rosen Zeitung*, that of species to operate as seed-bearers or pollen-bearers, are R. Harrisoni and R. sulphurea flore-plena. The former consist of Maréchal Niel, Jean Pernet, Madame Falcot, Medea, and Sunset; and the pollen-bearers, Beauté Inconstante, Belle Lyonnaise, Gustave Regis, Comtesse de Frigneuse, and Madame Pernet Ducher. Rosa sulphurea plena might be similarly crossed both ways. This is an extremely floriferous hardy plant, flowering in June, and bearing fruits freely. It is considered extremely probable that some distinct and beautiful varieties would result from crosses effected between the two species and the five varieties named.

THE BOTANICAL MAGAZINE. — The March number contains coloured plates and descriptions of the following plants :—

Dryandra calophylla, R. Br., t. 7642.—A low-growing shrub of tufted habit, with numerous spreading leaves, about 1 foot long; linear pinnately sect, the lobes ovate, triangular, dark green and glabrous above, rufously hairy beneath. The yellow flowers are densely arranged in close heads, surrounded by a short involucre of leafy bracts. Flowered in the temperate-house at Kew in 1893.

Passiflora pruinosa, Mast.. t. 7643.—See *Gard. Chron.*, 1897, vol. ii., 393, f. 17.

Kniphofia Tuckii, Baker, t. 7644.—See *Gard. Chron.*, 1893, i., f. 68.

Gynopleura humilis, Romer, t. 7645.—A much-branched, low-growing annual, with hairy, linear, oblong leaves, and terminal corymbs of whitish flowers, with much of the structure of a Passion-flower, and very interesting botanically. A native of Peru and Chile.

Rosa acicularis, Lindley, var. nipponensis, Hook., t. 7646.—A single-flowered Rose, originally derived from Japan; more or less covered with glandular bristles; leaves with four pairs of pinnæ and a terminal leaflet, stipules leafy; flowers deep rose-pink, surrounded by a calyx of five linear, entire sepals; pedicel studded with glandular hairs, fruit elliptical red, contracted at the throat and surmounted by the withered sepals.

"PARK AND CEMETERY" is the title of a monthly publication issued at Chicago, to which we have nothing precisely analogous. It is "devoted to art out-of-doors, parks, cemeteries, town and village improvements." Certainly, great improvements are needed in the decoration (?) of our cemeteries, where too often the beautiful lines of the landscape-gardener are defaced by the obtrusive productions of the cemetery-mason. A society exists called the Association of American Cemetery Superintendents, the object of which is to "cultivate a sense of the beautiful;" and the journal before us has the same object.

"GÄRTNERISCHES CENTRAL BLATT."—This is a new German periodical devoted especially to nomenclature, the knowledge of plants, plant nutrition and plant protection, the industrial and hygienic properties of plants, as well as the educational and literary aspects of botany. The editor is M. ANDREAS VOSS; the business manager, to whom all letters are to be addressed, is Mr. C. DARMER, Weissenburgerstrasse 66, Berlin.

NEW CREATIONS IN FRUITS AND FLOWERS.—This is the catalogue of Mr. LUTHER BURBANK, one of the greatest of hybridists. Visitors to his grounds at Santa Rosa, Sonoma County, California, "are not allowed, as no possible benefit can accrue, and we have no time to spare." Nevertheless some who have penetrated into the fastness describe their astonishment at the vast number of experiments carried on, and we venture to think that in exceptional cases great benefit would accrue from a visit to such an establishment. The present number is largely occupied with the description and illustration of new Plums which have not as yet found their way here, but which represent types of Plums of totally different origin to our European varieties.

DEATH THROUGH LOCKJAW.—Mr. WYNNE E. BAXTER, coroner, held an inquest recently, at the London Hospital, on the body of WILLIAM ANDREWS, aged 15 years, a nurseryman's assistant, late of 193, Higham Hill Road, Walthamstow. The evidence showed that the deceased was employed at TRICKER'S nursery, Walthamstow, and called out to some painters who were working there, "You lazy fellows." One of the painters ran after the deceased, who caught his foot in the frame of a greenhouse, and fell to the ground on some broken glass, sustaining a cut on the knee. This did not appear serious; but on Thursday last his neck and then his jaw became stiff, and death took place from tetanus. The coroner remarked, that it was now a well-known fact that the tetanus bacillus was found in the earth, and the mischief was evidently done when the deceased fell to the ground. A verdict of "Accidental death" was returned.

CARNATIONS IN AMERICA.—We extract from *The Florists' Exchange* some details relating to an offer of 5000 dols. for a Carnation superior in quality to "Mrs. Thomas W. Lawson," the stock of which was lately bought for 30,000 dollars.

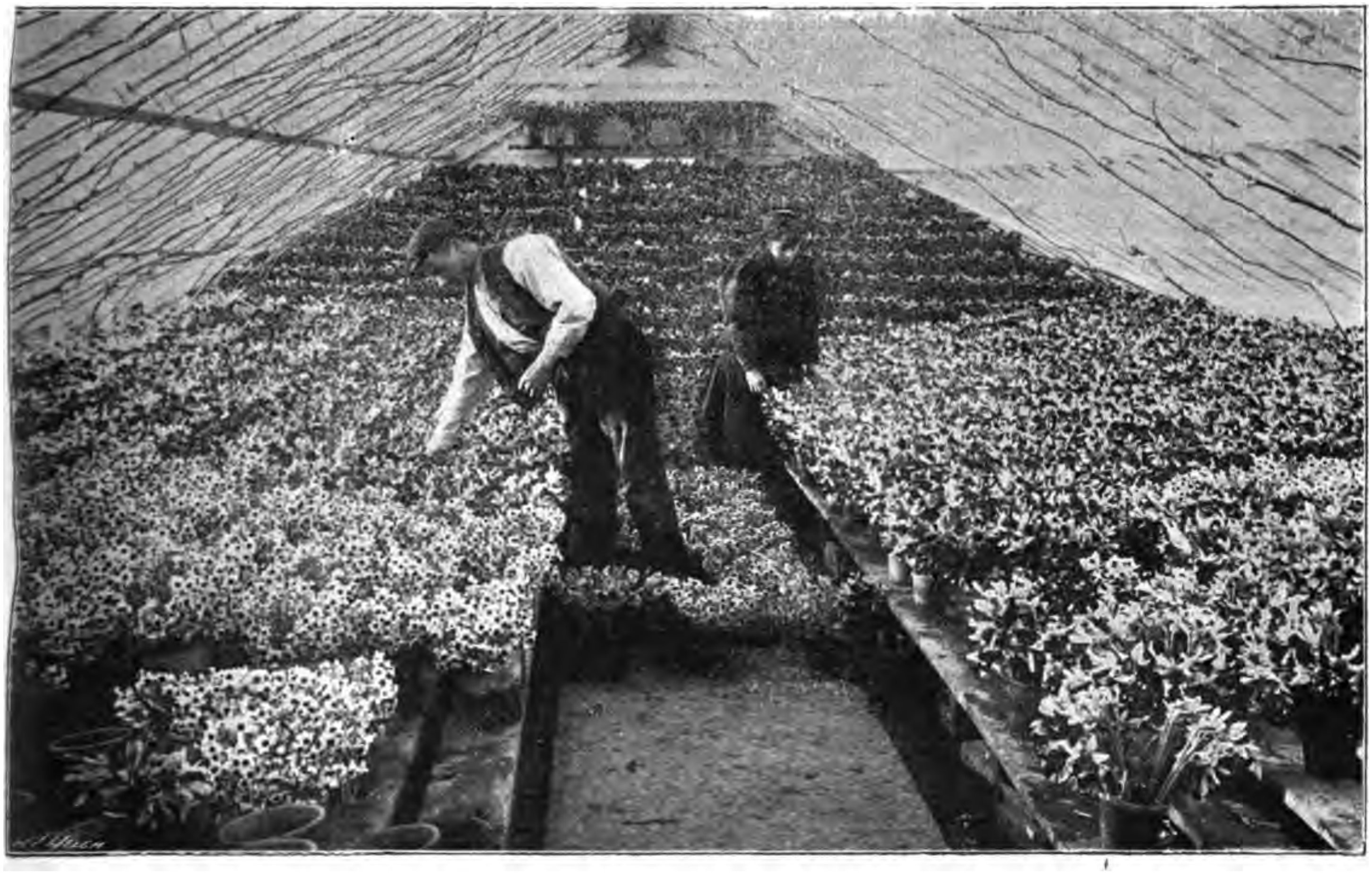
> "I hereby agree to pay over to the owner of the Carnation which shall be adjudged to be equal to the Mrs. Thomas W. Lawson Carnation the sum of Five Thousand Dollars (5,000 dols.) upon the following terms and conditions :—
>
> First.—The competition shall take place at the next annual meeting of the American Carnation Society, to be held February 16 and 17, 1899.
>
> Second.—If my prize is not awarded at this competition the competition shall be renewed at the succeeding annual meeting of this society in 1900, at which time, if my prize has not been awarded, I reserve the right to withdraw my offer.
>
> Third.—The judges are to be three in number, one selected by the American Carnation Society, one selected by me, and the third named by these two.
>
> Fourth.—The payment of the prize of Five Thousand Dollars (5,000 dols.) to be made by me to the successful competitor upon the presentation to me, by him or his duly authorised agent, of the certificate of award and the transfer to me of all plants owned or controlled by him and a full title to the ownership of the flower and the right to name it, or to rename it if it has already been named (that is, as it has been said that 5,000 dols. is an enormous price to pay for any Carnation which has not already become known and largely advertised, it is understood and agreed by all competitors, that in the event of their being awarded the sum of 5,000 dols., they will part with their ownership in the name of the winning Carnation, in other words I will not be offering a premium of 5,000 dols. to destroy the large investment that I have already made in the Carnation I now own, but instead will be offering 5,000 dols. for another Carnation the equal of the one I now own).
>
> That no misunderstanding may arise as to my desire, I will say, it is now my intention to present the Mrs. Thomas W. Lawson Carnation to the City of Boston, with a proper fund for its propagation, for the benefit of her hospitals and public institutions, and to also present in the same way and for the same purpose the Carnation which I may acquire through this competition.
>
> Fifth.—The Carnation eligible for this competition must be pink in colour.
>
> Sixth.—In judging, the value of points must be in the following order:—
>
> First.—Colour (light pink, or what is known as the cerise shade, to be the starting or perfection point; due weight is to be given to the colour that is most attractive and brilliant under artificial light).
>
> Second.—Size of flowers.
>
> Third.—Length and strength of stem.
>
> Fourth.—Habit, calyx must not split, commercial value, freedom from disease, propagation whether free, and freedom of flowering.
>
> Seventh.—Each lot for competition must consist of one hundred blooms."

BELGIUM ON THE CONGO.—"The activity of the Belgians has, says an Exchange, created in the heart of the mysterious Dark Continent twenty-four commercial companies, with a capital of about £3,800,000. Belgian commerce, which in 1885 was almost nil, amounted in 1897 to £500,000 for exports from the Congo to Belgium, and to £6,000,000 for imports from Belgium to the Congo, or a commercial movement of £1,100,000. There are few instances in the history of colonies of so rapid a commercial development. The country is hardly explored before merchants and manufacturers come forward and found companies for the building of new railways, create new plantations for the numerous rich tropical products, raise cattle, and build hotels and trading posts. In consequence of the King's speech at Antwerp on October 16 last, Belgian capitalists have become interested in the project of establishing a line of steamers between Antwerp and the Congo Free State, to be manned and officered by natives of the country. The idea, as reported, is to put shares on the market at such a rate that the people will be able to subscribe for them; and it is confidently expected that there will soon be a considerable increase in the Belgian merchant marine. The number of Belgian inhabitants, according to a late estimate, is 1060; acres cultivated by the State, 24,710; under concession to private parties, 79,072,000; Coffee-trees, 4,000,000; Cacao-trees, 125,000; Tobacco plants, 76,000; steamships on the Upper Congo, 41; tonnage, 1060."

AUTUMN COLORATION OF LEAVES.—In a recent number of *Nature*, Mr. E. OVERTON notes that he observed the leaves of Hydrocharis morsus-ranæ, or frog-bit, to become of a reddish-brown colour when placed for some days in a weak solution of cane-sugar. The colour is due to the appearance of red cell-sap in the palissade cells and in the cells lining the air chambers of the leaf. This red cell-sap occurs normally in the tissues of the plant, especially when exposed to the sun and to a concurrently low temperature; but is much more abundantly produced when the plants are cultivated in sugar solutions. Mr. OVERTON concluded from these experiments, and from the observation of autumnal leaves in Switzerland, that an increase of sugar at the cost of starch might be one of the factors concerned in the production of red pigment. LIDFORSS has shown that during the winter the leaves of our native plants are devoid of starch, but contain much sugar. The red colouring matters are probably of the nature of glucosides and are in most cases unions of tannin compounds with sugar. The climatic conditions of autumn—viz., bright light, and relatively low temperature—favour the production of the pigment. It is possible, says Mr. OVERTON, to produce red tints at any time of the year by feeding them with glucose, but only in those cases where the colour is in the central cells of the leaf. Where the coloration is in the epidermis, experiments with glucose are unsuccessful. Here is a fine field for experiment opene up to the student, and one the practical importanc of which is obvious.

TILLAGE.—The great advantage of tilling t soil, says M. DEHÉRAIN, is to assure the retentio in the soil of reserve stores of moisture—moistu which is necessary as the condition requisite for th operation of the ferments which fix the nitrogen i the soil, and render it assimilable. *Comptes Rend February* 20.

SOCIÉTÉ ROYALE D'AGRICULTURE ET D BOTANIQUE DE GAND.—At a meeting of the abov held at Ghent, on March 6, the following awar were made:—Certificates of Merit for Chr Madame Bral-Fortie, from M. B. Fortie; Erioc-nema Mémoire de Madame Rigouts, from M. A. Rigouts; Eriocnema Brilliant, also from M. A. Rigouts; for a seedling Dracæna, from MM. d Reuse Frères; and for Dendrobium Wardianu grandiflorum, from M. L. De Smet-Duvivie Certificates of Merit for cultivation and flowerin were awarded for Polygala Dalmaisiana, fro M. E. Bedinghaus (*à l'unanimité*); Acacia Sophor Acacia rupicola, and Erica arborea, all from M



From a photograph by] [*R. H. Preston, Penzance.*

Fig. 58.—The Narcissus harvest in Scilly: preparing blossoms for the market.

E. Bedinghaus (*par acclamation*); for Imantophyllum Madame H. de Bisschop, from M. V. de Bisschop (*par acclamation*); for Odontoglossum roseum, from M. L. de Smet-Duvivier; Boronia megastigma, from M. E. Bedinghaus; and for Acacia acinacea, also from M. E. Bedinghaus (*par acclamation*). Certificates for novelty were awarded for sport Azalea Petite Simone, from M. A. Cardon; and for Eriocnema Perfection, from M. A. Rigouts (*par acclamation*). Certificates for a good variety were allotted to Odontoglossum Alexandræ, from M. le Comte J. de Hemptinne; and to Lycaste Skinneri elegantissima, from M. J. de Cock. Honourable Mention was awarded for Odontoglossum flaveolum, shown by M. L. de Smet-Duvivier. Honourable Mention for a good variety was awarded for Kentia robusta, from MM. de Reuse Frères. The jury hope to see staged at the next meeting the collection of plants imported from the Congo, by MM. Haes & Son, of Saffelaere.

The Surveyors' Institution.—The next ordinary general meeting will be held on Monday, March 20, when a paper will be read by Col. G. W. *Raikes* (Fellow), on "The Report (No. 2) of the Royal Commission on Local Taxation, especially dealing with Valuation and Rating in respect of Tithe Rent-Charge." The chair will be taken at eight o'clock.

Proposed Special-Certificate Examinations, 1899.—Notice is also given that the next Special-Certificate Examinations in Forestry, Sanitary Science, Land-surveying and Levelling are proposed to be held on Tuesday, Wednesday, and Thursday, June 13, 14, and 15. Particulars of these examinations can be obtained from the Secretary.

Country Meeting at Bristol.—It has been decided, on the invitation of the Somerset, Gloucester, and North Wilts Provincial Committee, to hold the next country meeting at Bristol on April 26 and 27. The first day will be devoted to papers and discussions, with a dinner in the evening; the second day to excursions to various places of interest in Bristol and its neighbourhood. Full particulars will be issued a little later on.

New Orchids.—W. J. Klinge, Botanices Doctor, has reprinted from the *Transactions of the St. Petersburg Garden*, vol. xvi., a series of descriptions of new Orchids, cultivated in the stoves of the Imperial Botanic Garden. The new species figured are Aërides siamense, t. 1, figs. 1 to 5; Catasetum rostratum, t. 2, fig. 22; Cattleya bicolor var., t. 1, fig. 6; C. brasiliensis, t. 1, figs. 7 and 8; Cirrhopetalum ciliatum, t. 1, fig. 15; C. pileolatum, t. 1, fig. 9; Cymbidium Queeneanum, t. 2, fig. 13; Maxillaria guianensis, t. 2, fig. 18; Microstylis madagascariensis, t. 2, fig. 20; Pleurothallis flaccida, t. 3, fig. 35; Polystachya quinqueloba, t. 3, figs. 30 and 31; Sarcanthus pendulus, t. 3, figs. 32 to 34; Stanhopea oculata var. constricta, t. 2, figs. 26 and 27; S. oculata var. geniculata, t. 3, fig. 28; Zygopetalum ovatilobum, t. 3, fig. 29; Habenaria claviformis, t. 2, fig. 11 and 12; Maxillaria cepula var. pallida, t. 2, fig. 17; Stanhopea intermedia, t. 3, figs. 23 to 25.

Primula obconica.—The following note is taken from the paper of Dr. Kirk's in the *Lancet* of March 4, referring to the irritant nature of this plant:—"It turned out that my patient had all along been cultivating and frequently handling this plant, and she stated that she had occasionally chewed the flowers and swallowed the juice, but could not say whether she had done so shortly before either of the acute attacks here recorded. The noxious plant, being now discarded, there was no further return of the mischief, except on one occasion, when from curiosity she held a leaf in contact with her lips for a short time, soon after which they, together with the point of the tongue, swelled up for some hours. The important facts remain to be added, that she had handled the plant for one or two years before the first blistering of the lips was experienced, whilst the rest of the family had been unaffected by it, although a sister was as much given to chewing the flowers as the patient herself. Numerous cases in which this irritant has produced similar, but rarely, if ever so severe, effects as those observed in this case have been recorded of late in both medical and lay journals, and from these several sources the following facts stand out prominently:—(1), that the effects are described as erysipelas, uticaria, but more especially as eczema of the face and hands, sometimes attended with much swelling; (2), that some constitutions are specially susceptible, while others enjoy immunity; and (3), that apparently the majority of sufferers have been females, although on the latter point the evidence is not decisive.

THE NARCISSUS IN SCILLY.

In our issue for March 26, 1898, we gave an illustration of a Narcissus garden in one of the Scilly Islands, showing a number of men and boys engaged in gathering Narcissus blooms for market. The illustration in the present issue (fig. 58) affords an idea of the subsequent treatment of the cut blooms previous to their being packed in wooden boxes, containing a dozen or more bunches.

It is the practice of the cultivators of these flowers to gather them before they are fully expanded, and to place them in vessels containing water, which are stood in a building having a temperature of about 50°, so as to force them to expand.

The fact of this being done without, as it were, ageing the flower, enables it to remain in good condition for a longer period of time than would be the case if it expanded fully in a natural manner.

HOME CORRESPONDENCE.

THE BLACKBERRY AS A PROFITABLE FRUIT.—In the January monthly number of *Chambers' Journal* attention is drawn to the fact that the common wayside berry has been successfully cultivated in various parts of England and Scotland, so much so, that the fruit has found a place in the fruiterers' shops, and a ready sale effected. A few particulars are given as to the method of culture adopted by Mr. Cabell at Larbet in Sutherlandshire:—"Each bush is planted 3 feet from its fellows, and trained on wires, which are fixed on posts 6 feet in height. There are two rows of bushes, each 20 yards in length, and running north and south, so that the sun can act equally on both sides of the rows. At first little manure is needed, but by the third year the plants will have reached maturity, and can be treated more liberally." From the two rows of bushes described there was gathered in 1897 about 99 lb. of luscious fruit, and as the weather last year was more favourable, the crop may, no doubt, have been greatly increased. This really looks as if the culture of the Blackberry might be made a profitable industry. When we think how hardy the plant is, and what fine crops of fruit it will bear in hedgerows and copses, where it does not receive any cultivation, and what fine fruit can be met with during a favourable summer and autumn, it is not difficult to imagine that the Blackberry might take a high place among our cultivated fruits. Perhaps there is no fruit less liable to the attacks of insects and birds, and for the space of three months—that is, through August, September, and October—fruit can be gathered in prime condition. The Blackberry-bush produces successive crops, which is more than can be said of a good many of our cultivated fruits. Instances are not wanting of the improvement made in the common Blackberry under cultivation, for, given a congenial soil, the berries come of large size and fine quality, size in the fruit, and improvement in their flavour. Of European Blackberries, R. laciniatus seems to do remarkably well [R. laciniatus is British]. I remember some fifteen years ago seeing a glorious bush of it at Castle Ashby laden with fruit; and Mr. George Beech, who was then the gardener there, stated that it was invaluable to him in making up large desserts. He was at the time gathering really magnificent fruits, but he cultivated it well. I often wonder this fine Blackberry is not more grown by gardeners. When cultivated, it is found to bear earlier than the bushes in the hedgerows. Kittaating and Wilson, Jun., are earlier still in bearing, and the former is perhaps the best flavoured, while it is of a robust constitution, and the core to the fruit is not so large as that of Wilson, Jun. *R. D.*

PASSIFLORA RACEMOSA.—I recently noted a fine specimen of this charming species in capital condition in the garden of F. C. Stoop, Esq., West Hall, Byfleet. The plant was trained on wires attached to the roof, and extended the full length of the house, about 25 feet. It was a mass of flowers and flower-buds. The gardener, Mr. Carpenter, considers it one of the finest plants for a cool-house, as it is almost continually in flower, and the cut blossoms are useful for indoors decorations. The flowers are of a deep red colour, large in size, and borne in terminal pendulous racemes. Although not suitable for small glasshouses, unless much pruned, it deserves mention by reason of its attractive colour, free flowering, and the ease with which it may be grown. When planted out in turfy loam, peat, and sharp sand, it grows quickly, soon covering a large area. Propagation is by means of cuttings of the young shoots, taken in the spring, with a heel attached, and struck in a close frame or under a bell-glass in moderate heat. This species is a native of Brazil, introduced from thence in 1815. A synonymous name adopted by some authorities is that of Passiflora princeps, under which it was described by Loddiges in his *Botanical Cabinet*, p. 84. *E. S., Woking.*

AVENUE TREES.—A stately avenue is usually an admired feature in a gentleman's demesne, or being a public road; but this mode of planting is not favoured by present-day landscape gardeners. I remember seeing a few years ago an avenue of Populus alba on the Earl of Pembroke's estate, near Salisbury—an avenue worth walking a good many miles to see, and one that is probably unrivalled in this country. Not many miles distant, near Romsey, a fine avenue of Elms may be seen. An avenue, if the trees planted suit the use and the soil, is a desirable feature, and when it forms the road to the residence, the importance of the latter is enhanced. In well-timbered parts an avenue may seem out of place; on the other hand, if big timber is scarce, and there is no fine scenery to preserve, then, I think, an avenue is an improvement. It is important not to plant the trees nearer to the sides of a road than 10 feet, especially if Conifers are chosen for forming the avenue. Most deciduous trees have a good length of clear stem, and some planters like to see this class of tree, when grown up a good height, meet across the road, and so form a leafy canopy; and to enable this canopy to form early, the trees could be planted nearer to the roadside. I would recommend the distance apart to be 24 feet for the Conifers, and 18 feet for the deciduous class, more or less accordingly, as the natural habit is spreading or compact. As good avenue trees I may mention Horse-Chestnut, Pavia, Limes, especially the American; the wild Cherry (Gean), very desirable on account of its masses of white flowers in the spring, and the rich bronzy leaves in autumn—it is like the Beech in the counties of Oxford, Berks, and Bucks, or wherever the soil is chalky. Among Conifers are Cedars Deodara, atlantica and Libani, Abies nobilis glauca, Pinus austriaca, Abies Nordmanniana. Conifers, if they are to live long, need a deep loamy soil. Other species often planted are Araucaria imbricata, Sequoia sempervirens, S. gigantea, and Cryptomeria japonica, and in good, well-drained soils, they are eminently satisfactory trees. *A. J. L., Wyfold Court.*

THE DROPMORE DOUGLAS FIR.—Your correspondent, "E. W. B.," is in error in stating the Douglas Fir at Dropmore to have been raised from a cutting. The late Mr. Frost has left the history of the tree in his own writing:—"The seed that produced this tree was sent from the Horticultural Society to Lord Grenville about mid-winter 1827-28, by the name of Abies taxifolia." Probably "E. W. B." has confused this with some other tree, unless, which is probable, he fell a victim to one of my worthy predecessor's waistcoat-pocket stories, which he was so fond of relating in characteristic style. *C. H.*

GARDENERS' BENEVOLENT INSTITUTION.—For fully forty years past I have been permitted to read regularly the pages of the *Gardeners' Chronicle*; I can honestly say that up to now no article printed therein has seemed to me so well timed, sympathetic, and logically written for the purpose intended as the one by Mr. Owen Thomas, at p. 152, referring to the above-named Institution. In my opinion it should be printed with good type in letters of gold, by the thousand, then framed, and hung up in every gardener's cottage and bothy in the three kingdoms. Few gardeners can have more respect for gardeners and horticulturists as a body than myself. I must add that I think it somewhat of a blot on their otherwise fair fame that hundreds, if not thousands, more of the gardening fraternity do not support the Institution in question. Having had my say in your columns some years since, I will, with your permission, only add this thought now. Is it not possible to get the wives, sisters, and daughters of gardeners to interest themselves generally in this matter, as some few do now? What I would suggest is, that every gardener's cottage in the country should possess a plain, neatly-made box, with "Garden Charities" stamped upon it in good bold letters. Into this box the female who presides over the household might put in a small sum weekly, as opportunity offered. The box could be opened annually when the time for paying subscriptions arrives. As a rule, the amount necessary to make these up would not be large, and not prove a serious drain on the amount at hand for general household expenses. Having had a fairly large family to bring up and educate, with the too often unavoidable expenses of illness, &c., I have known something of this difficulty. Sixpence per week put on one side, as I suggest, would pay the annual subscription to both the Gardeners' Royal Benevolent Institution and its close relative the Royal Gardeners' Orphan Fund. To those of my brothers of the craft who may not be in a position to spare the whole amount at once, I respectfully commend this suggestion, and would ask them, in all good faith, to bring it to the notice of their wives, daughters, or sisters, as the case may be. It only requires the will to begin, the rest is certain to follow. *Henry J. Clayton, Grimston Gardens, Tadcaster.*

MR. DIBBENS' POTATOS.—As the Winchester raiser of Potatos appraises the merit of his seedlings, it may be suggested that he send us over some twenty tubers of a few of his best to Chiswick for trial this season. He may be assured that if sent there they will receive every attention, and be estimated by the Fruit Committee when seen in the autumn with the utmost fairness and impartiality. The Committee have no partialities, and treat everybody's product with equal courtesy. Of course, it does frequently happen that what seem to be swans in one place are, when tested with the best at Chiswick, but ordinary ducks. Mr. Dibbens may take it for granted that although some hasty persons have drawn false conclusions from statements of the President of the Royal Horticultural Society not long since, that the garden [illegible] exhausted; and though that is to some exte[illegible]pherically true, yet the soil is not at [illegible]hausted; and last year, in spite of the dro[illegible] it produced some grand crops of Potatos, bet[illegible]n which I have never seen. We specially [illegible] to see how these Winchester seedlings come [illegible] the disease ordeal. So far no variety [illegible] yet proved itself to be absolutely disease-resisting, but many have proved to be comparatively so, [illegible] in that respect there has been great gain, which [illegible] all Mr. Dibbens tells us be true, may be [illegible]ally added to. *A. D.*

CHOISYA TERNATA.—This beautif[illegible]green shrub gives promise, owing prob[illegible] the abnormal heat of last summer, of [illegible] than usual abundance of bloom. Almost [illegible]shoot is set at the point with flower buds. As [illegible]tive subject at any season, but especially so d[illegible] the months of May and June, when bedecked [illegible] its sweet scented white blossoms, the merits of this shrub deserve that it should be grown more commonly in the South of England and other warm localities where the climate is suitable. In these parts it looks charming in the form of a bush in corners and angles of buildings, also trained on warm walls where it attains a height of more than six feet. It grows well in any free garden soil, but in soils of a heavier nature, planting in a compost of loam, peat, and sand, is recommended. Young plants can be quickly raised from cuttings, which root readily on a mild, hot bed. *James Baxter.*

GALANTHUS MELVILLEI.—In my remarks upon Snowdrops on p. 129, I accidentally omitted any reference to one of the finest of our varieties of Galanthus nivalis. This is the variety Melvillei, which is very fine in every way, and can hardly be excelled for its beauty. Whether it is due to the climate or soil, it appears to be even finer at Dunrobin Castle than with us in the South-west of Scotland. Mr. D. Melville very kindly sent me some flowers from Dunrobin, and their beauty surpasses that of any flowers I have had here of the same variety. *S. Arnott, Carsethorn, by Dumfries, N.B.*

NEW INVENTION.

Our illustration (fig. 59, p. 173), shows a new device, patented by the Rev. E. Darnley Smith, of Landscove Vicarage, Ashburton, for protecting ripening fruit from the attacks of birds, wasps, snails, and other injurious creatures. The protector is made of celluloid-netting, so that it is very light and neat in apperance and free from smell. The figure shows a form adapted for Pears, but others of different sizes and patterns are manufactured for Peaches, Grapes, nd other fruits. The protector is made in two alves with a hinged-joint so that it can readily be pplied to the fruit without risk of undue handling r bruising. When placed in position, it may be uspended from the branch, and the appliance closed y clamps fixed to the edges. It can, of course, be tilised for a variety of purposes, one of which may e the protection of flowers that have been cross-ertilised and from which it is essential to exclude nsects.

Though the material is nearly as light as muslin, t admits as much or even more light to the fruit, nd it is, of course, much more durable. We are informed that trials have been made with the protectors for the last three years, and that they have been continuously exposed in all kinds of weather, fierce sun and heavy winter-rains, without injury. We ought to add that the material is readily inflammable, and we have known serious accidents arise from this circumstance, but the risk in this particular instance is small, unless perhaps from lightning where walls are wired. The cost will vary from about 24*s*. per gross for Peaches, and to 30*s*. per gross for Pears. The ice will vary according to the size of the otectors and the quality of the material ployed in their construction, but consider- their durability it will doubtless be found t economical to employ those of the best ality.

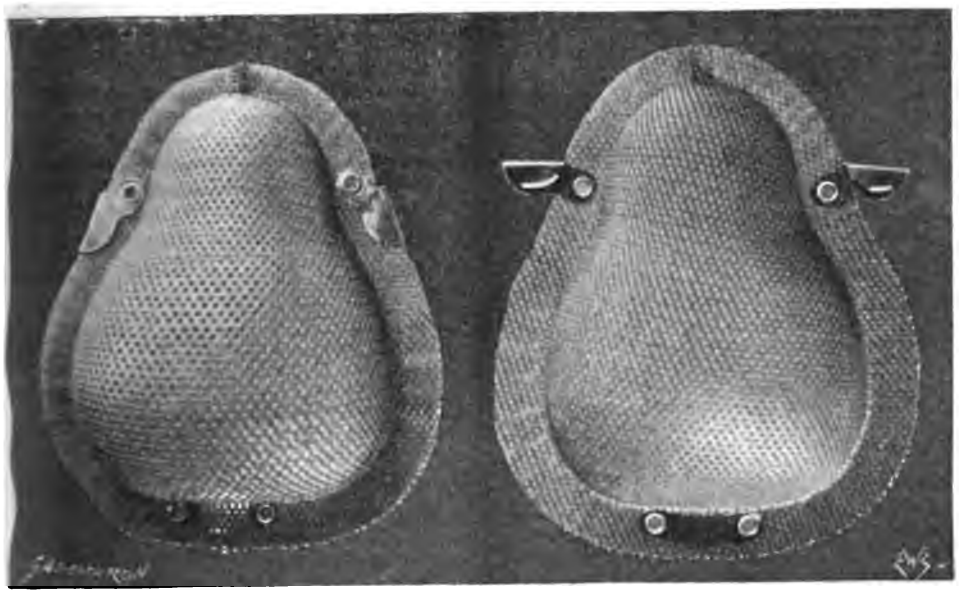


FIG. 59.—A PATENTED PROTECTOR FOR RIPENING PEARS, PEACHES, OR OTHER FRUIT. (SEE P. 172.)

It is stated that the ripening process is hastened d the flavour enhanced. Similar appliances de in paper will be utilised for the purpose of king fruits and flowers for exhibition or other rposes.

Some specimens were exhibited before the Fruit mittee of the Royal Horticultural Society on day last, and no doubt in the coming season tensive trials will be made of them. The paratus is to be placed on the market, in e first instance, through the agency of W. H. eck, Esq., 115, Cannon St., London, E.C., whom application should be made.

LAW NOTES.

RE SOLON DENSON.

The public examination of this debtor took ce at the London Bankruptcy Court, before Mr. istrar Hope, upon a statement of affairs showing liabilities amounting to £1150, and assets expected to produce £686 11*s*. 5*d*., from which £32 19*s*. 6*d*. had to be deducted for the claims of preferential creditors payable in full, leaving nett assets at £653 11*s*. 11*d*., and showing a deficiency of £463 13*s*. 10*d*. Replying to questions put by Mr. Hough, senior official receiver, the debtor stated that he had failed on a previous occasion in 1882 or 1883, and he had not obtained his discharge under those proceedings.

SOCIETIES.

ROYAL HORTICULTURAL.

March 14.—Not for some years has a meeting of the Royal Horticultural Society been held in such wretched weather as was the case on Tuesday last. The fog that on Monday was quite sufficient to make London unpleasant, developed into a thick, dense sheet, that did not lift during the whole of Tuesday. It was dark enough out-of-doors, but the interior of the Drill Hall was so obscure that it was quite as difficult to inspect the exhibits as we have ever known it to be at the Royal Aquarium. In spite of all this, the Hall was very well filled with a grand display of exhibits, a circumstance that may be explained by the fact that country exhibitors had no idea of the kind of atmosphere into which they were bringing their plants.

Orchids were very numerous, and as many as six Awards of Merit, and three First-class Certificates were awarded to novelties in these plants. The Floral Committee, though recommending fewer awards, had to deal with a large number of exhibits, including a very remarkable one from Captain Holford, whose Hippeastrums were generally admired, and thoroughly deserved the Gold Medal awarded to Captain Holford. Several of the seedling Hippeastrums (four), were recommended Awards of Merit. There were gay collections of Azaleas, Cyclamens, Camellias, Cinerarias, &c., a large exhibit of choice Ferns, and many miscellaneous exhibits of a floral nature. The only other award to a novelty, however, was to a variety of Azalea mollis from Messrs. R. & G. Cuthbert.

The Fruit and Vegetable Committee recommended a First-class Certificate to Apple Allen's Everlasting, and an Award of Merit to Apple Barnack Beauty, in the latter case to mark the worth of the variety as a market Apple. Several collections of fruits and other interesting exhibits were staged.

The lecture was one by Mr. Spencer Pickering, who, described the nature of the experiments in relation to fruit culture, now being conducted on the estate of the Duke of Bedford, at Woburn.

Floral Committee.

Present: Chas. E. Shea, Esq., Chairman; and Messrs. Chas. T. Druery, H. B. May, R. Dean, R. Wilson Ker, Wm. Howe, Thos. Peed, Chas. E. Pearson, J. W. Barr, J. D. Pawle, Geo. Gordon, E. H. Jenkins, C. R. Fielder, E. T. Cook, C. Blick, D. B. Crane, Jas. Walker, H. J. Jones, Ed. Mawley, J. Fraser, Chas. Jeffries, and W. Marshall.

Mr. Jno. R. Box, West Wickham and Croydon, showed a group of Cinerarias, nice dwarf plants, well flowered, and of distinct and rich colours (Bronze Floral Medal).

Messrs. J. Hill & Sons, Lower Edmonton, contributed a large group of choice Ferns, all of them tinted or variegated varieties. We noticed a cream variegated variety of Pteris serrulata cristata, and of Pteris cretica, some very well coloured plants of Pteris arguta, and of Pteris tricolor. The tinted Adiantums in a number of varieties would have made a fine display in better light; indeed, the entire exhibit was one that suffered terribly in effect from the extreme darkness in the building (Silver Banksian Medal).

The St. George's Nursery Company, Hanwell, Middlesex, again made a magnificent display with a very fine strain of Cyclamens. The plants were better flowered than when shown on the last occasion, but in other respects were very similar (Silver Flora Medal).

Messrs. R. & G. Cuthbert, Southgate, showed a floral picture of Azalea mollis and A. sinensis hybrids. This exhibit filled the greater part of one of the central tables, and was composed of abundantly flowered plants of exquisitely tinted varieties, but few of the seedlings were named. A. mollis, Geo. Cuthbert, apricot coloured, with deeper spots, was very pretty. Six new varieties of Hyacinths were contributed by the same firm (Silver Flora Medal).

Messrs. F. Sander & Co., St. Albans, exhibited a group of plants of Deutzia Lemoinei = D. gracilis, and D. parviflora (figured in the *Gardeners' Chronicle*, Aug. 5, 1898, p. 153). It is a very pleasing plant when seen, as on this occasion, covered with rosettes of blooms of the purest white.

Messrs. Sander & Co. again displayed plants of Acalypha hispida, Dracæna Sanderiana, and a plant in flower of Hæmanthus cinnabarinus superba.

The most remarkable exhibit before the Floral Committee was an immense group of Hippeastrums from Captain Holford, Westonbirt, Tetbury, Gloucestershire (gr., Mr. A. Chapman). One half of one of the long central tables was thickly furnished with them, and it was said that the plants had been selected from a collection of 2000 plants, 1500 of which are now in flower. The collection was remarkable from many standpoints. The plants were most healthy-looking, and the flower-scapes of great strength, most of them bearing three or more flowers. The blooms generally were very large in size, and the colours bright and very effective. In a few of the varieties only could any trace be seen of the green throat that was once so characteristic of the Hippeastrum. There were self-coloured flowers, others with a very prominent white band through each segment; also flaked and mottled flowers. A considerable variety of form could also be observed in the collection. Several of the best of the varieties are described below as obtaining awards, but it would be easy to make the selection a much larger one. A Gold Medal was awarded to Captain Holford for this exhibit, which was probably the best collection of Hippeastrums ever shown by an amateur.

A slender and dwarf-growing white-flowered Calla, known as Perle von Stuttgart, was shown by Mr. W. Pfitzer, Stuttgart, but how it differed from "Little Gem" is not apparent, and a plant of Corylopsis pauciflora in flower was shown by Messrs. Paul & Son, Waltham Cross Nurseries.

Messrs. Barr & Sons, King Street, Covent Garden, showed a table of Narcissus, Helleborus in variety, Chionodox , Cyclamen species, Anemone, Tulipa Leichtlini, Lachenalias, and a particularly vivid crimson-flowered Primula sinensis. (A Silver Banksian Medal.)

Mr. H. B. May, Dyson's Lane Nurseries, Upper Edmonton, N., showed potted Clematis in six varieties, viz., Lord Londesborough, Lady Londesborough, a pale variety; Sir Garnet Wolseley, purplish-lilac, one of the best; Fair Rosamond, rather shrubby in habit, and free, white with a carmine stripe on each petal; Miss Bateman, a white flower; Mrs. Quilter, also white. All of these were small examples, trained in each case to an upright stick, and more or less abundantly bloomed. They had been, as we were told, brought on quite cool in a vinery. Besides these, there were four nice plants of Acalypha hispida (Sanderiana). A Silver Flora Medal was awarded.

Messrs. W. Paul & Son, The Nurseries, Waltham Cross, showed, as on a recent occasion, a fine assortment of Camellia japonica, in large and small examples, most profusely flowered, besides ten show boxes containing two dozen blooms apiece, and all of them in the best condition. C. Mathiotiana alba, Pride of Waltham, flesh colour; Montironi, and Donna Maria Pia, a flower of the palest flesh tint, may be regarded as the pick of the varieties shown. A Silver-gilt Flora Medal was awarded.

Messrs. Thos. Cripps & Son, Tunbridge Wells, exhibited a small group of early-flowering Clematis in pots, and a large number of cut blooms of the same in much variety of colours in boxes filled with moss (a Bronze Flora Medal was awarded).

Mr. G. Mount, Exotic and Rose Nurseries, Canterbury, showed two boxes filled with most admirable Roses, consisting of H. T.'s and H. P.'s, and a number of Roses was shown cut with long stalk and stuck into bottles. These consisted of Mrs. John Laing, Niphetos, Captain Haywood, &c. (a Silver-gilt Banksian Medal was awarded).

Messrs. Jas. Veitch & Sons, Royal Exotic Nurseries, Chelsea, showed plants in flower of M. Lemoine's Deutzia, D. hybrida Lemoinei, also of a variety of Azalea mollis, known as Alphonse Lavallée, with orange-coloured flowers, with pale centres; also the curious Azalea linearifolia, with its rose-coloured thread-like petals; Spiræa confusa, &c. Also four varieties of Hippeastrums of much merit, and a very fine plant of Cliveia Orion.

AWARDS.

Hippeastrum Murelli.—A large and well-formed flower of deep crimson, having an unusual amount of substance in the segments. The scape bore four flowers. From Capt. HOLFORD (Award of Merit).

H. Apple-blossom.—The ground colour of flower is white, the segments having usually a broad stripe of white in the centre, and flaked and coloured with bright red. From Capt. HOLFORD (Award of Merit).

H. Robin.—A fine crimson flower, with white in throat; substance very good. From Capt. HOLFORD (Award of Merit).

H. Virginia.—A light-coloured variety, in which white is feathered sparsely with red. From Capt. HOLFORD (Award of Merit).

Azalea Mollis Purity.—A lemon-coloured variety of much attractiveness. From Messrs. R. & G. CUTHBERT, Southgate (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch Esq., in the Chair; and Messrs. J. O'Brien (Hon. Sec.), De B. Crawshay, J. Colman, H. Little, F. Sander, A. Outram, H. J. Chapman, W. H. Young, H. Ballantine, E. Hill, H. T. Pitt, J. Jaques, W. H. Protheroe, C. Winn, J. Gurney Fowler, T. W. Bond, W. H. White, and S. Courtauld.

Like the last meeting, the show was held in foggy weather, but so far from interfering with the display other than rendering examination difficult, even with the full lighting power of the Hall, a more than usually fine collection of Orchids was staged. Sir TREVOR LAWRENCE, Bart, Burford (gr., Mr. W. H. White), made a very effective display, the whole of the exhibits being characterised by vigorous health and profuse flowers. Of the specimens very remarkable for their fine culture were Brasso-Cattleya-Lælia × Lindleyana with twenty-nine flowers, the rare Cœlogyne conferta (Cultural Commendation), with a profusion of bloom; a noble example of Dendrobium × Burfordiense, covered with its showy rose-tinted blooms; fine forms of Masdevallia Harryana and M. ignea, a few noble examples of Odontoglossum crispum, that named maculosum being profusely spotted like O Wilckeanum, a charming example of the white and violet Epidendrum Endresii and another of its hybrid E. × elegantulum; Cymbidium eburneum, with many large white flowers; and a fine lot of Calanthe Sanderiana, which made a separate group. Other remarkable things were Spathoglottis Lobbi, with several spikes; the singular blue flowered natural hybrid, Vanda × Moorei (Kimballianum × cœrulea); Chysis × Chelsoni, Bulbophyllum barbigerum, with a long raceme of its sensitive feathery flowers; Dendrobium × Wigania xanthochilum, clear yellow, with purple disc, very superior to the original; D. × Juno, Cœlogyne pulchella, Spiranthes colorata Forgetiana; two examples of Cypripedium × hirsuto-Sallieri, differing much in colour; Galeandra devoniana; Cypripedium × Alice, fine Cattleya Trianæi, &c. A Silver-gilt Flora Medal was awarded.

To Baron Sir H. SCHRODER, The Dell, Staines (gr., Mr. H. Ballantine), a Silver Flora Medal was awarded for a small but select collection of Odontoglossums, including the still best purple-blotched form, O. Pescatorei Veitchianum; the equally rare O. Leeanum, with a noble spike of sixty-two flowers; fine forms of O. Wilckeanum, O. luteo-purpureum, &c.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, staged a fine group, in which were some new and very rare hybrids. Of the former were Phalænopsis × Hermione, a very remarkable flower, resembling P. × Mrs. Jas. Veitch, but densely spotted with rose colour; P. × Cassandra (Stuartiana ♂, rosea ♀), with blush-white flowers and bright rose lip; and Sophro-Lælia × lacta superba, a better form of the original, with reddish-rose flowers. Of better-known things, one of the most interesting was a fine form of Phalænopsis Aphrodite, raised from true seed sown in 1882, and giving another example of the utility of raising desirable species usually imported. Also in the group, prominent were Cattleya × intertexta, several Lælio-Cattleya × Nysa, Epiphronitis × Veitchi, Dendrobium × Euryalus, D. subclausum, Epidendrum Wallisii, E. × elegantulum, spikes of the brilliant scarlet E. × O'Brienianum superbum, Calanthe × gigas, Phaio-Calanthe × Niobe, Cymbidium × eburneo-Lowianum, Phalænopsis rosea leucaspis, &c. A Silver Flora Medal was awarded.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, had a grand group, for which a Silver-gilt Flora Medal was awarded. The main feature in it was about forty-five specimens of the noble Phaius × Norman (Sanderianus × tuberculosus) which is perhaps the highest example to be obtained in its section. The plants bore a number of spikes of very large flowers, varying in the tint of the sepals and petals from pale yellow to copper colour and reddish-rose, and in the colouring of the lip from rosy-purple to dark claret-purple. All the forms may well be called florists' flowers of great beauty.

A series of nice forms of Lycaste Skinneri, including the best white form, the brightly coloured Dendrobium × Sibyl, still the only D. bigibbum cross-proved; the chaste D. × Doris, some specimens of D. infundibulum covered with flowers, Cypripedium Youngianum, Oakwood variety, a noble flower; fine forms of Odontoglossum crispum, O. Edwardi, Cattleya Trianæi, Cypripedium × Doncasterianum, &c., were among the plants shown.

W. THOMPSON, Esq., Walton Grange, Stone, Staffordshire (gr., Mr. Stevens), showed Odontoglossum crispum Duke of York, a very large flower, profusely spotted with rose-purple.

J. LEEMANN, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), showed Odontoglossum crispum, Mrs. J. Leemann a very remarkable variety, distinct in the peculiar arrangement of its bright reddish-brown spotting on the French-white ground colour of the flower, and in their more dense arrangement on the flower-spike. The general appearance of the flower suggested a very large finely-spotted O. Andersonianum, but the crest denoted typical O. crispum. Mr. LEEMANN also showed a fine form of Zygopetalum × Perrenoudi.

Messrs. HUGH LOW & Co., Bush Hill Park, Enfield, staged a good group, remarkable for the fine varieties of Cattleya Trianæi and with them forms of Cypripedium insigne, including C. i. Sanderæ, good Odontoglossum crispum, O. Halli, O. Pescatorei, Dendrobium Wardianum, with very fine flowers; D. crassinode, Lælia harpophylla, L. glauca and L. cinnabarina, Lycaste Skinneri alba, Miltonia Roezli, Oncidium splendidum, Cochlioda Noezliana, &c. A Silver Banksian Medal was awarded.

Messrs. B. S. WILLIAMS & SON, Victoria and Paradise Nurseries, Upper Holloway, staged an effective group, in which were good examples of Cypripedium × Pitcherianum, Williams' var., C. × Winnianum, C. × grandiflorum, Williams' var., C. × Harrisianum × Sallieri Hyeanum, C. Boxalli nigrescens, C. × euryandrum, C. villosum, C. × vernixium, Dendrobium Wardianum giganteum, and two white varieties of it; Cattleya Schroderæ, Cymbidium eburneum, C. Lowianum, varieties of Lycaste Skinneri, Cœlogyne cristata alba, Odontoglossums, &c. A Silver Banksian Medal was awarded.

M. JULES HYE-LEYSEN, Coupure, Ghent (gr., Mr. Coen), showed Cypripedium × Œdipe, a very handsome hybrid with rose-coloured upper sepals, banded with white; O. × virginale "Venus," a fine large pure white; O. triumphans nigrum, and others enumerated in the List of Awards.

M. CHAS. MARON, Brunoy, Seine-et-Oise, France, showed Lælio-Cattleya × Imperatrice de Russie (C. Mendeli ♀, L. Digbyana ♂), a fine flower, equalling in beauty the famous L.-C. Digbyano-Mossiæ, and with a similarly fringed lip; also L.-C. × Ernestiæ (O. Percivaliana ♀, L. flava ♂) the typical form, with yellow flower, tinged with rose colour.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed Odontoglossum Rossii Crawshayanum; O. R. rosefieldiense; the fine O. × Andersonianum Bogaerdianum, and O. × excellens Crawshayanum.

Mr. JOHN STEVENS, Pope's Grove, Twickenham, showed Odontoglossum × Murrellianum Stevensii.

Messrs. F. SANDER & Co. showed a small group, in which were the new Cypripedium × Furzeanum (callosum pulcherrimum × hirsutissimum), a very pretty hybrid, with the peculiar form of C. hirsutissimum in the petals, which were shining claret-red, with darker spots, the whole flower suffused with rose-colour; the pretty Phaius × Joiceyanus (Blumei × amabilis), very quaintly marked; fine forms of Cattleya Trianæi, Odontoglossum × Mulus, Dendrobium Wardianum, of a very large type, &c.

WELBORE S. ELLIS, Esq., Hazelbourne, Dorking (gr., Mr. Barrell) showed Odontoglossum Pescatorei, Ellis's var. a good purple-spotted form, and O. × Andersonianum Hazelbourne var. a very showy flower.

J. F. Ebner Esq., Beckenham (gr., Mr. Waite), showed well-bloomed varieties of Cypripedium villosum, &c. J. T. Gabriel, Esq., Streatham Hill, sent a very large form of Dendrobium Wardianuml W. P. Burkinshaw, Esq., Hessle, Hull, sent Dendrobium × Hessleiense (Findlayanum × splendidissum grandiflorum).

AWARDS.

Lælio-Cattleya × Imperatrice de Russie (*C. Mendeli ♀, L. Digbyana*) from Mr. CHAS. MARON, Brunoy, France. Flower very large; white, delicately tinged with rose-pink. Lip heavily fringed like L.-C, × Digbyano-Mossiæ (First-class Certificate).

Odontoglossom crispum 'Sultan' from M. JULES HYE-LEYSEN, Ghent (gr., Mr. Coen). Nearest to O. c. Sanderianum, flowers heavily marked with red-brown over the greater part of their surface (First-class Certificate).

Odontoglossom crispum 'Duke of York' from W. THOMSON, Esq., Stone, Stafford (gr., Mr. W. Stevens). A fine large white flower evenly spotted with rather small purplish rose spots (First-class Certificate).

Odontoglossum × excellens Hyeanum, from M. JULES HYE-LEYSEN. A very large pale yellow flower richly spotted (Award of Merit).

Odontoglossum crispum 'Mrs. J. Leemann,' from J. LEEMANN, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge). A distinct novelty with French-white flowers evenly spotted with red-brown in a manner seen in fine forms of O. × Andersonianum (Award of Merit).

Dendrobium × Wiganiæ xanthochilum (signatum × nobile), from Sir TREVOR LAWRENCE, Bart. (gr., Mr. W. H. White). This was raised at Burford, and the flowers are of better shape and brighter yellow than the original (Award of Merit).

Masdevallia ignea Boddaertiana, from Sir TREVOR LAWRENCE. Flowers the largest of any variety of the species, suffused with bright reddish-scarlet (Award of Merit).

Cypripedium × Talisman (Sallieri Hyeanum × Harrisianum superbum), from M. JULES HYE LEYSEN. A very fine dark form, with distinct traces of C. × Harrisianum superbum (Award of Merit).

Phalænopsis × Hermione (? Stuartianum × Luddemannianum), from Messrs. JAS. VEITCH & SON. Flowers almost identical with P. × Mrs. J. Veitch, illustrated in *Gardeners' Chronicle*, but densely spotted and tinged with rose (Award of Merit)

Phalænopsis × Cassandra (rosea ♀, Stuartiana ♂), from Messrs. JAS. VEITCH & SON. Of the P. × intermedia class Flowers blush-white, with dark rose lip (Award of Merit.)

Sophrolælia × L. laeta superba (S. grandiflora × L. Dayana), from Messrs. JAS. VEITCH & SON. Flower finer than the original reddish rose with purple lip (Award of Merit.)

Odontoglossum Mirandum and Cœlogyne pulchella from Sir TREVOR LAWRENCE, Bart. (Botanical Certificates).

Narcissus Committee.

Present: Rev. G. H. Engleheart, chairman; Mr. C. R. Scrase-Dickens, Secretary; Miss Willmott, Messrs. J. H. de Graaff, J. Walker, A. Kingsmith, W. Ware, P. Barr, R. Sydenham, and others

The promise of an early season has proved faithless in the Narcissi as in other departments. The mild winter scarcely compensated for the unusually late start of the bulbs into root-growth in summer and autumn, 1898, attributable to the long drought. The winter months, too, were deficient in bright sun, and the cold nights of late have been a check. No open-air flowers came before the committee.

Messrs. BARR sent an interesting set of Dutch-raised hybrids between poeticus ornatus and various Polyanthus Narcissi, their main value being that of greater hardiness than N. Tazetta, derived from the poeticus. One of the best had trusses of three flowers approaching the poeticus in size. As the plants were in pots, the committee recommended a Vote of Thanks, and desired to see the strain again from the open ground. Messrs. BARR were also awarded a Banksian Silver Medal for a well-grown group of pot-Narcissi in variety. The white Madame De Graaff was especially well shown, and the fine new bicolor Victoria seems better adapted for forcing than the older kinds.

Fruit Committee.

Present:—Geo. Bunyard, Esq., Chairman; and Messrs. Robt. Fife, Jas. Smith, Geo. Wythes, W. Pope, J. W. Bates, W. Iggulden, Alex. Dean, S. Mortimer, A. F. Barron, Jas. Basham, E. Shaw Blaker, and Jas H. Veitch.

Mr. JOHN WATKINS, Pomona Farm, Hereford, showed a collection of seventy dishes of excellent Apples (Silver Knightian Medal).

Mr. A. J. THOMAS, Rodmersham, showed fifty dishes of culinary and dessert Apples, admirably kept, mostly well developed fruits, with clear skins, plump, and of high colour. A Silver Knightian Medal was awarded.

A Seakale named Russell's "Solid Ivory" was shown by Mr. J. Russell, Richmond; evidently what is known as Ivory-white, a capital lot of heads (Vote of Thanks).

H. A. BLYTH, Esq., Swanstead House, Swanstead (gr., Mr. Barker), showed fair-sized, ripe fruits of the Tree-Tomato, Cyphomandra betacea.

Good examples of the seldom-seen Barnack Beauty Apple were shown by Mr. GILBERT, gr. at Dykebourne House, Lincolnshire.

Mr. J. Masterton, gr. to Lord CAMPERDOWN, Weston House, Shipston-on-Stour, showed six fruits of Uvedale's St. Germains, stewing Pear, fine examples, and well kept (Cultural Commendation). A fine large fruit of a crimson cheek on the sunny side, and evidently it is a long-keeping variety (Award of Merit). He also showed Apple Allen's Everlasting, Blenheim Pippin, and Royal Russet.

Mr. CROOK, gr., Forde Abbey, Chard, showed a dish Sturmer Pippin Apple (Vote of Thanks).

Various dishes of Apples were shown for name or honours but nothing which calls for special comment.

Mr. MASTERTON, gr., Weston House, showed half-a-dozen very fine examples of Onion Ailsa Craig, receiving a cultural commendation. Some fine Leeks were shown by Mr. COCKS, Peterborough.

A dish of a new seedling kidney Potato was shown by LEOPOLD SALOMONS, Esq., Norbury Park, Dorking (gr., Mr. G. Kent).

Lecture.

THE EXPERIMENTS AT WOBURN.

In the afternoon a lecture was delivered by Mr. Spencer Pickering, F.R.S., upon "The Duke of Bedford's Experiments at Woburn; their object and method."

Mr. Pickering commenced by explaining away the fallacy that there can exist any real antagonism between science and practice, claiming that the genuine scientific worker of the present day is essentially a practical labourer. It was the ideal of the scientific worker of the present day to lessen the distance that lies between the cultivator and the results the latter seeks to obtain; to devise easier and quicker methods. Theory without practice, or practice without reflection, and consequent theory, is not satisfactory.

Mr. Pickering, in referring to the fact that in the case of agriculture, scientific experiment and research had been employed to a much greater degree than had as yet been attempted in the case of horticulture, said that in horticulture or fruit growing there were many difficulties that did not present themselves to the scientific agriculturist. In conducting experiments, it was very necessary that a large number of plants or trees be subjected to them, or the results would be worthless. Then arose the question of space, for one tree covered a large a portion of land compared with a plant of Wheat, Barley, or Turnip. Then the length of life of a fruit-tree was another difficulty, because the value of experiments would be small if they were only concerned with a few years growth. But many other difficulties were enumerated by Mr. Pickering relating to the large number of varieties there are of fruits, and to the question of pruning, differences of soil, climate, and season, of which latter the lecturer gave an instance in the case of Strawberries, one variety in one season being very prolific, whilst it was quite the reverse in another season, when some other variety took the lead. Such difficulties, however, said Mr. Pickering, should not prevent the carrying out of such experiments as the Duke of Bedford had commenced. Results are, of course, comparative, and Mr. Pickering stated that in an experiment it was necessary that the treatment afforded should be modified from the normal in one particular only, or there would be uncertainty in connecting effect with cause.

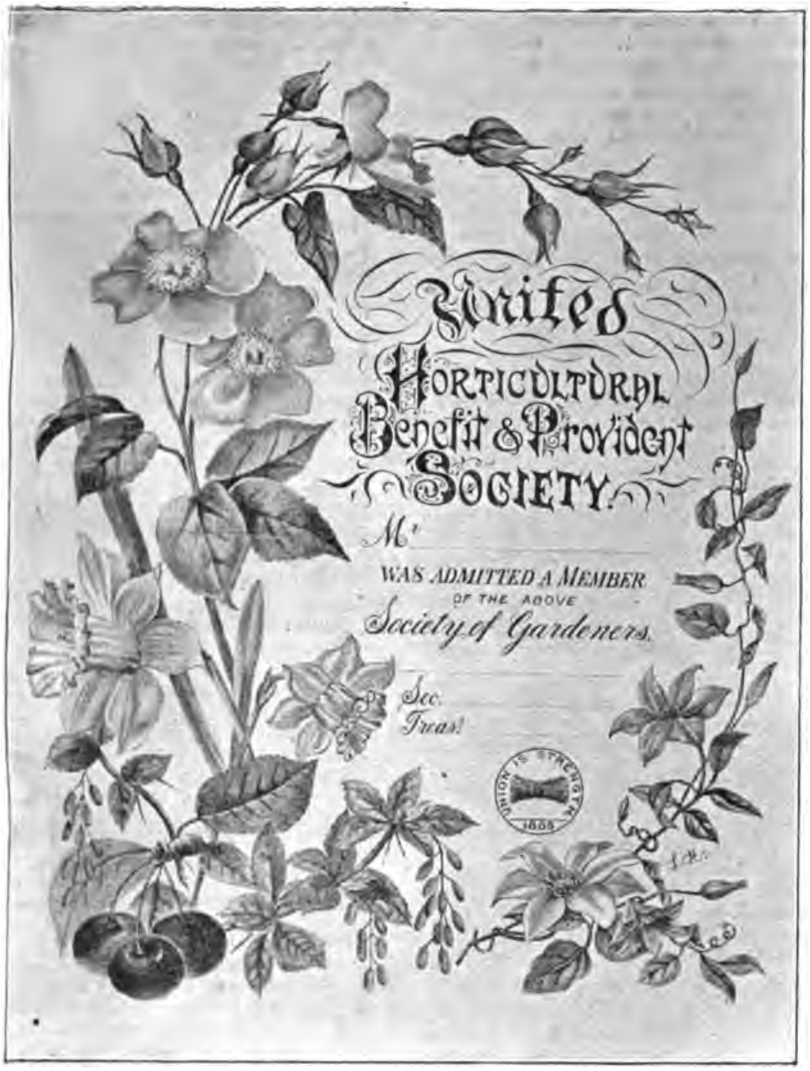


FIG. 60.—FLORAL EMBLEM OF THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

For instance, the lecturer mentioned the experiments that are being made with dwarf Apple-trees. These are planted in rows, and the treatment given each row differs only in one particular, but always a different one, from the normal. Hence, if the result was different in comparison to those known under normal treatment, the cause of such variation was clear. The great care necessary, and the means taken to thus preserve the experiments from influence from outside sources, were explained in some detail by Mr. Pickering.

The manuring of soil for fruit-tree [cultivation has received attention, and to this purpose have been used chiefly natural (dung) manures and potash, nitrogen and phosphates.

Having so far described how the Woburn experiments had been organised, Mr. Pickering discussed the means to be taken to measure the results, and showed that this process is far more difficult than would at first sight appear. In judging the produce of an Apple-tree, for instance, which should be accounted most valuable, quantity or quality? Was a crop of large, finely-coloured Apples better than a crop of smaller ones but of the same weight in bulk? If so, how much better?

TESTING OF VARIETIES.

Experiments to test the varieties of fruits, said Mr. Pickering, conducted at one spot only, such as Woburn, would have no value, but the result on the contrary would be most misleading. If varieties of Apples could be tested satisfactorily, and the present list enormously reduced, the person doing this would be a public benefactor, but it would be necessary to possess experimental stations in many localities, and under one organisation.

PESTS AND DISEASES,

said Mr. Pickering, were fortunately not productive of the amount of injury in this country that was the case in some of our colonies, and in America. The only pest that had so far troubled them seriously at Woburn was the Black Currant-mite, which, said Mr. Pickering, threatened to destroy the Currant plantations in this country. At Woburn they had tried many specifics for the destruction of these mites, but so far all of them had failed.

In conclusion, Mr. Pickering said that the experiments at Woburn were commenced in 1894. A report had been issued during last year, and a second report was now commenced, and data for it were gradually accumulating. But experiments must be continued through a course of years before actual results could be published, and above everything it was necessary that scientific workers should not jump to results, but everything must be done to ensure that the results may be reliable and fairly comparable.

Mr. Geo. Bunyard, Maidstone, said that he had gathered from Mr. Pickering's remarks, that he, in association with the Duke of Bedford, were doing, with other means, at Woburn what practical people had done by what is called "Rule-of-thumb," which meant that they adopted the experience of generations of fruit-growers that had gone before. Mr. Bunyard was grieved to learn that no good result had followed the measures for ridding the Currant-bushes of mite. In Kent these Currants used to be the best paying crop, but the industry was now crippled and menaced by this pest.

Mr. HARRY J. VEITCH (Chairman), said that he thought that it would be interesting if Mr. Pickering stated what kind of soil they had at Woburn. Mr. Pickering, who replied to a very cordial vote of thanks, said that the site was on the Oxford clay, and above that there were nine inches or so of clay and sand, but few stones. The remedies that had been employed against the Currant-bud mite included kerosene emulsion, turpentine, carbolic acid, benzine, alcohol, a German proprietary insecticide, &c.

BRISTOL AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

MARCH 9.—A large audience assembled at St. John's Parish Room, to hear a lecture by Mr. C. BRIDGES, on "The Culture of Hyacinths and Tulips."

The lecturer in a racy manner dealt with the early history of the bulbs, and their introduction into this country; the treatment required for their successful cultivation in the flower-garden, or for conservatory decoration, and for exhibition.

Prizes for Tulips and mixed pots of bulbs were awarded to Messrs. BANNISTER and PIDGEON.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

AN interesting lecture on "The Onion" was given by Mr. A. DEAN, of Kingston-on-Thames, on Monday evening last before the members of the above Society, the President, Mr. C. B. Stevens, presiding over a good attendance of members.

The classification of the Onion, its various divisions, and the different varieties, were treated in a very able manner, followed by many practical hints on the preparation of the ground, manuring, time of sowing, and a few remarks on the enemies of the Onion and their treatment, judging at shows, and the uses of this most useful vegetable. A discussion followed, in which Messrs. Woolford, Hinton, Purkiss, Neve, and Martin took part. A vote of thanks was heartily accorded to Mr. Dean for his paper.

The exhibits included some well-kept specimens of Onions, including Sutton's Globe. Improved Reading. Ailsa Craig, &c., contributed by Mr. Bright, gr., Whiteknight's Park; Mr. J. Pound, Sen., gr. to Mr. G. May, Caversham; Mr. Neve, gr. to T. R. Harman, Esq., Sindlesham House; also some splendidly flowered Freesias, by Mr. Dockerill, gr. to Mr. G. W. Palmer, M.P.; and several vases of blooms of Primula obconica, by Mr. Townsend, gr. to Sir William Farrer, Sandhurst Lodge.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

MARCH 13.—The annual meeting of the members of this Society, whose usefulness to gardeners we have many times insisted upon, was held on Monday evening last, in the Caledonian Hotel. The chair was filled by Mr. JOHN FRASER, F.L.S., and there was a moderate attendance. The following paragraphs have been taken from the report of the Committee for 1898:—

"Eighty-three members joined during the year, sixteen lapsed, and eight died, one being a lapsed member, and the amounts standing to their credit have been paid. The membership now stands at 741. The amount of subscriptions paid by members to the Benefit Fund, including arrears for 1897, was £1163 11*s.* 2*d.* The amount paid to sick members was £258 17*s.*, a rather heavy amount, several cases being of a long and serious character. The amount is covered by deductions from members' deposit accounts of 8*s.* 7*d.* and 5*s.* 9*d.* respectively.

"Subscriptions to the Benevolent Fund from honorary and benefit members amounted to £141 13*s.* 3*d.*, and £35 5*s.* 6*d.* has been granted in small amounts to members from this fund. The first member (No. 4) to receive a regular allowance, being over 70 years of age, is now on the funds, and taking into consideration that he has worked on the committee from the commencement of the Society, has been granted 8*s.* per week.

"The Convalescent Fund continues to be useful, and is now incorporated in the rules. Subscriptions to this fund were £23 3*s.* 3*d.*, and £6 has been paid out. All members are invited to contribute to this fund. The Management Fund shows a balance of £109 19*s.* 4*d.* The Treasurer's statement of accounts is also very satisfactory. The amount invested in Corporation Stock for the past year was £1250, the total amount of funds invested being now £14,350, and the treasurer has a balance in hand of £128 15*s.* 11*d.*"

The report was accompanied by a balance sheet duly audited. The Treasurer's statement showed that the Society has a balance of £88 3*s.* 5*d.* over and above all liabilities.

The report and balance-sheet having been accepted by the meeting with unanimity, the chairman said that he had availed himself of an opportunity that had been afforded him to thoroughly inspect the books of the Society, and this inspection had convinced him that the members had every reason to be satisfied with the manner in which their affairs were managed. Mr. Fraser had something to say of each fund, declaring that they were all valuable ones, and that each had been worked to profit. The membership, which twelve years ago was 200, is now 769, and the expenses of management for the year, including Secretary's salary, and all administrative expenses, was the modest sum of £99 19*s.* 5*d.* The advantages the Society has to offer to young gardeners above those that any similar society can give them, were plainly pointed out by Mr. Fraser, who incidentally mentioned that one of the members has now a sum of nearly £100 to his deposit account in the Society. Even in the case of lapsed members, the sum standing to their credit is not confiscated by the Society, 'but is retained until such lapsed member has attained a certain age, when it is paid over to him, or in the case of death occurring earlier, to his nominee.

Subsequently, it was decided to print 2500 copies of the Report and Balance Sheet for distribution.

Messrs. Peerless, Burge, and Forward, were elected members of the Committee, and in the places of Mr. G. W. Cummins and Mr. Wheeler, who retire through change of residence, Messrs. Harding and Taylor were elected. Mr. Harding, who is a young gardener, at present employed in the gardens at Gunnersbury Park, is the first under gardener to be given a place upon the Committee.

Replying to a Vote of Thanks, the Treasurer, Mr. J. Hudson, referred to the new emblem, or certificate, which we illustrate on p. 175. It has been designed by Mrs. Harvey, (*née* Miss Lilian Hudson), and the design itself measures 18 inches by 10 inches; the probable cost to each member will be eighteen pence. The emblem is a very artistic production, in which flowers and fruits are associated. The Penzance Sweet Briar will be readily recognised, also the Clematis, Narcissus, Berberis, and Cherries.

The re-election of Mr. Collins, as Secretary, was proposed by Mr. A. Hemsley, and several members, including Mr. Hudson, supported the motion.

The turnover during the past year between the Secretary and Treasurer, said Mr. Hudson, had been about £2,000, and when they compared their books each agreed with the other to a penny. Mr. Collins was re-elected with enthusiasm. Votes of Thanks to the Trustees, Committee, Press and Chairman, concluded the proceedings. The address of the Secretary is 9, Martindale Rd., Balham, London, S.W.

American Carnation Society.—The annual meeting of the Society on February 16, at Philadelphia, was somewhat interfered with by the severity of the weather. The encouragement held out to raisers of new seedlings by the colossal price paid for "Mrs. T. W. Lawson" was alluded to. It may, we think, be doubted whether this abnormal occurrence will do anything but harm in the long run. We understand that the proceeds from this Carnation are to be devoted to the hospitals and charitable Institutions of Boston, so that some good, at least, will be done. Mr. Lawson, we see, has offered 300 dols. for prizes to be awarded at the next year's show of the American Carnation Society. The most satisfactory manure was found to consist of nitrate of soda, 3 lb. 14 oz.; dissolved bone-black, 1 lb. 1 oz.; muriate of potash, 1 lb. 13 oz.; the quantity being estimated for a bench space of 100 square feet. The Society adopted the following scale of points for judging:—Colour, 25; size, 20; calyx, 5; stem, 20; substance, 10; form, 15; fragrance, 5. Flowers of Mrs. T. W. Lawson were exhibited, and are described in the *Florists' Review* as being of "wondrous beauty and size." Nevertheless, Mr. Silvers hopes to beat this flower in 1900 with his Hannah Hobart.

TRADE NOTICE.

We understand that Messrs. Cooper, Taber and Co., Limited, have purchased the old-established business of Messrs. Rutley and Silverlock, of Victoria Embankment, London, W.C., and from March 14 the business has been conducted by them at the above address, and at Witham, Essex. Mr. Rutley will continue to have an interest in the business as heretofore.

ENQUIRY.

Fragrant Roses.—Will some kind Rose amateur oblige M. D. P. with the names of a number of varieties of Roses, which retain their fragrance in the hottest weather? Many ordinarily fragrant Roses, as for example, La France, lose their perfume on hot days.

COLONIAL NOTES.

THE BERMUDA JUNIPER.

We in Bermuda find "the Cedar" a most valuable wood for all purposes. It is very durable as posts or ship timbers and planks, and makes nice furniture. I myself have several old chairs and chests that were made by the early settlers, and the wood is as sound as it ever was. This island is, in most parts, densely covered with the trees, and there are many beautiful groves of large trees as high, I should say, as 100 feet. Trees fit to cut are continually being taken to the saw-mills, making room for the younger trees to grow, to be made into rafters, &c., though not so much used as formerly when the entire woodwork of a house was made of "Cedar." I see in your paper that Evelyn says, "and we might have of the very best kind in the world, from the Summer Islands, though now almost utterly exhausted there also." He evidently alludes to timber-trees, trees fit to be shipped to England and elsewhere. In the old records of the colony, discovered, deciphered, and published in two excellent volumes, by Governor Lefroy, frequent mention is made of vessels carrying back to England logs of "Cedar," and chests of the same wood, but the colonists were so improvident and wasteful, that laws had to be made forbidding the cutting of "Cedar," except by the owner, and a stop was also put to the shipping of Oranges, &c., in boxes or chests of Cedar. During later periods, when shipbuilding was an industry of the island, the poor Cedars again suffered, but of late years no vessels have been built here, and the Island is becoming densely wooded again. The largest trees now growing are to be found in the salt-water marshes, the heart-wood is much darker than that of trees on high ground, but it is not nearly so durable.

I have lived for ten years or so in Florida, and have "hunted" and camped in the great Gulf-hammock. This is where the Cedars are cut for the large pencil-mills at Cedar Keys. We used to burn large branches of these felled trees for our camp-fire, and would have gladly used any other kind of wood because it invariably "spluttered" and sent large pieces of burning coals flying all over our camp, and we had often to get up in our blankets and stamp out the fire. This tree is presumably J. virginiana [yes]. At all events it serves to show what a difference there is between it and J. Bermudiana, which we daily burn in our kitchen, and which never plays us such pranks. The Gulf-hammock is swamp-land densely timbered with different hard and soft woods, the "Cedar" not by any means predominating.

The Bahama Juniper I never noticed, but I brought a stick from there made of the wood, and had a handle made for it of J. bermudiana. There seems to be no distinguishable difference between the two woods. *Arthur Haycock, Bailey's Bay, Bermuda.*

ANSWERS TO CORRESPONDENTS.

Books: *E. P. A.* The book named is to be obtained at Macmillan & Co., St. Martin Street, W.C.—*E. J. G.* The English edition of *Lindenia* has been discontinued. The work can still be obtained, however, in the French language, and is published at 117, Rue Belliard, Bruxelles, Belgium. The price is sixty francs, or about £2 10*s.* per year. *Lindenia* is issued in monthly parts, but occasionally the parts for two months are issued together.—*H. J. H.* A number of small well written manuals by men of great experience are published by Mr. Upcott Gill, 170, Strand, W.C. The price of same runs from 1*s.* to 1*s.* 6*d.*

Chickweed on a Lawn: *P. G.* You might try the effect of some substance that, by increasing the growth of the finer grasses, would smother out of existence this weed and others. Fish manure, Watson's lawn sand, sold by the sundriesmen; wood ashes, sifted decayed dung, &c., if put on now that the grass is growing, would do this. Chickweed, Stellaria media, flowers from March to October, and you must take every means of preventing the ripening of the seeds by mowing the lawn weekly.

Cubic Contents of Glasshouse: *Alpha.* The house contains 3318 [illegible] cubic feet.

Forcing produce for Market: *A Subscriber.* Any good general work on gardening is suitable, say *Thompson's Gardeners' Assistant*, published by Blackie & Sons, Glasgow and London; *The Culture of Vegetables and Flowers*, by Messrs. Sutton & Sons, Reading. There is nothing that is new in market garden operations, only so far as contrasted with the same in a private garden, the desired results are obtained by cheaper means.

Glazing Forcing Houses: *Duplex.* The best kind of glazing is that which prevents drip, and is yet air-tight without the use of putty or paint, which is practically imperishable, can be easily erected, is secure against the heaviest wind, and affords the maximum of light. These conditions are obtained in the galvanised steel sash bars.

Hampton Court, and other Big Vines: *A. S.* The Great Vine at Hampton Court is said to be about 150 years old. It bears annually about 1700 small bunches. We do not know if it ever bore a greater number than this. The roots have travelled far away from the original border, and they have been found, it is said, in large numbers in the Palace sewer. So far as we know of, no feeding of the Vine is now performed. The Cumberland Lodge Vine is twice as large as that at Hampton Court, and the crop of bunches is correspondingly greater. It fills a house 138 feet long by 20 feet wide. It is probably older than that at Hampton Court. A Vine at Manresa House, Roehampton, the largest in the country, planted in 1862, now fills a house 420 feet long and 24 feet wide. It has borne 800 bunches of good fruit. There are several other big Vines, but we would refer you to Mr. A. F. Barron's book on *Vines and Vine Culture*, published at *Journal of Horticulture* Office, Temple Chambers, 1, Wine Office Court, E.C.

Horticultural Examination: *H. D.* Write for particulars to the Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster.

Leaf: *J. W. D.* The drawing is apparently that of a Fig-leaf, but not being certain we should like to see the actual leaf and a shoot.

Names of Fruits: *W. L. Farmer.* 1, Cox's Pomona; 2, Yorkshire Beauty; 3, Royal Somerset; 4, Hambledon Deux Ans.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*C. A. B.* 1, We cannot name without flowers; 2, Opuntia microdasys; 3, Gasteria glabra; 4, Rochea falcata; 5, Gasteria verrucosa; 6, Aloe albispina.—*A. B.* Prunus spinosa; the Sloe, nothing to do with the Glastonbury Thorn.—*J. B., Llantrisant.* 1, Daphne laureola (Spurge Laurel); 2, Forsythia suspensa.—*Acorn.* 1, Cryptomeria elegans; 2, Cephalotaxus drupacea; 3, Retinospora obtusa; 4, Cryptomeria japonica; 5, Tsuga canadensis; 6, Cornus sibirica (what a scrap!).—*E. M. C.* Cymbidium aloifolium.—*N. C. D.* Cœlogyne cristata.—*F. Crook.* 1, Pittosporum undulatum; 2, Polygala myrtifolia, the form is known in gardens as P. Dalmaiseana; 3, Alonzoa incisifolia.—*R. R.* If the coat of the corm is netted, your Crocus is C. reticulatus, otherwise we should refer it to C. Imperati.

Soluble Ferments and Seed Germination: *G. W. A.* See *Gardeners' Chronicle*, p. 431, December 11, 1897.

Violets: *J. W.* See the reply to W. W., in our last issue, p. 160.

Communications Received.—M. D.—Dr. Zahl Bruchner, Vienna.—Dr. Engler, Berlin.—C. Frères, Mortefontaine.—M. Chabanne, Lyon.—G. E.—W. G. S.—J. S.—W. M. B.—J. D.—G. F.—G. W.—P. B.—G. A. K.—Attwood & Co.—R. P. B.—J. B. S.—R. D.—A. P.—C. W. D.—G. H. Engleheart.—S. A.—General Lamprey.

Specimens and Photographs Received with Thanks.—M. D.—J. Butler.

Important to Advertisers.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libraries.*

(*For Markets and Weather, see p.* xiii.)

THE
Gardeners' Chronicle
No. 639.—SATURDAY, MARCH 25, 1899.

THE POTATO IN FRANCE, 1781, A.D.

It seems strange to think that the Potato should have had a great struggle for existence when a book on this subject was written by M. Parmentier, a noted Parisian physician of his day; but so it was.

The author first discusses what constitutes true nourishment; but, as the nitrogenous nature of albumin, casein, fibrin, &c., was not well, if at all understood at that time; he lays more stress upon the farinaceous food, such as starch, &c., as holding the first rank. For he considers the gluten of Wheat not to have the high value which Beccari (who discovered it) and other savans declared. He ridicules the idea as being entertained in consequence of its apparently close resemblance to animal tissues, such as cellular tissue, horn, &c. Of course, the author was wrong, and Beccari right; but from his point of view, all roots containing starch should be useful for food.

His argument is that, as so many nutritious plants used as food contain little or no "glutinous matter," such as Barley, Oat, Rice, Maize, Chestnut, Sweet Potato (Patate), &c., but all contain much starch; therefore, this substance must be the most important element of vegetable foods. He then launches out on the virtues of the Potato, as being excessively charged with starch. "Its culture," he observes, "began in Ireland, it then passed over to England, thence to Flanders, Germany, Switzerland, and France. It grows in all sorts of climates, and most soils suit it. Three or four months suffice to bring the plant to perfection. It scarcely ever fails." He evidently never anticipated the ravages of the Phytophthora! "Finally, the vegetable kingdom offers nothing more useful, more wholesome, since it serves equally well for the baker, the kitchen, and for cattle. If Wheat is the first among cereals, the Potato is first among vegetables." He tells us that M. le Baron de Saint-Hiliare wrote to him to say that a single Potato had given him 986 tubers, though the majority were small.

So little known was it in 1770 in France, that people still confounded it with the Jerusalem Artichoke and the Sweet Potato; so he describes these plants for the benefit of the ignorant, adding, that the Potato belongs to the genus Solanum or Morelle. This word was the name of Solanum nigrum in the middle ages in England.

"When one reflects seriously that those years which yield a poor result in cereal grains affords an extremely abundant crop of Potatos, and, *vice versâ*, one is scandalised to see the indifference which certain people show to the detriment of the cultivation of the Potato." He refers to the great number of children in Ireland, as being due to the general use of the Potato by the inhabitants, inasmuch as it keeps them healthy when young, and gives to the parents a more robust constitution. The author also gives a number of cases of invalids who were greatly benefited by eating Potatos, even using them as a remedy for sleeplessness! He also strongly recommends the Potato for cattle, as improving the quality of the milk, and increasing its quantity.

If Wheat and Barley be scarce, then he strongly recommends adding Potatos to the flour, and describes several such uses to which it could be put. M. Parmentier then proceeds to describe a number of trees and herbs which might be useful in times of scarcity as furnishing starchy foods, such as the Horse-Chestnut (Marrons d'Inde), of which he observes that it was first brought from Northern Asia by Bachelier, the first tree being planted in the Jardin de Soubise, the second in the Jardin du Roi, 1656, which died in 1767, and the third at Luxembourg. The Acorn, Aristolochia rotunda, Belladonna, Bistort, Bryony, Colchicum, Drop-wort, bulbous Fumitory, Gladiolus, Black Hellebore and many others, he suggests, might be used as supplying farinaceous food.

The concluding part of the book, which runs to 600 crown octavo pages, is devoted to the refutation of twenty-four objections to the cultivation of the Potato. They appear to be mostly *à priori* assumptions, and all trivial. The following are specimens; of course the author had satisfactory answers for all of them.

"Some say the varieties of the Potato are more than sixty; but no one asserts which should be grown. They are, doubtless, only degenerations from the same plant."

"The Potato takes up too much of the soil, and will render it incapable of growing grain."

"The cultivation of the Potato is quite as costly as that of grain."

"That between spring and autumn is an interval of six months, during which one is deprived of this resource of food; whereas grain will keep indefinitely."

"If the Potatos get frozen or germinate in the winter, then they are lost altogether."

"Must we abandon our fields and soils so useful for corn? By paying too much attention to Potatos one will neglect corn, which is always beneficial."

"The use of Potatos for beasts is not so good as has been maintained; for observers have already remarked that the lard of pigs, which have been fattened on Potatos, has not much consistence."

"As an aliment for man, the Potato is not without reproach, for one must have a strong and vigorous stomach to digest the viscous and gross matters which the root furnishes."

The most complete answer to all these absurd objections has been supplied by the fact that, since the book was written, Potatos have been and are eaten all over France at the present day. *George Henslow.*

EVOLUTION IN THE GARDEN.

Your most interesting article (p. 72) will, as I sincerely hope, awaken a lively and more appreciative interest in some, at least, of the many phases of hybridisation and cross-breeding as carried on in British and Irish gardens. With all you say of the late Dean Herbert, I most cordially agree. He was "a Darwinian before Darwin," as also was the late T. A. Knight, in a somewhat different degree; and as you wisely observe, it was the fact of Herbert being a staunch churchman that did much to disarm the adverse criticisms of those who held that it was almost impious for man to interfere in the generation of plants by hybridism or cross-breeding, though no one of that epoch ever seems to have entertained the slightest objection to the art of grafting or budding being performed.

So unpopular was hybridism in gardens half a century or more ago, that some raisers of cross-bred seedlings were most unfortunately led to conceal the real origin of their hybrids and crosses, and this confusion they still further confounded by giving to them latinised specific names. This was largely done in the case of Ericas, Pelargonia, and the earlier hybrid Calceolarias, Cinerarias, Rhododendrons, and Fuchsias. This is a well-known matter of history, and it has, in some cases, moreover, led to confusion and misapprehension in recent times. Even the earlier Orchids and Nepenthes hybrids had Latin names, and it is only during recent years that either Latin or popular names and signs have been devised that show at a glance —firstly, whether a plant is a hybrid; and secondly, that afford one some clue as to its parentage.

To the action taken at the first Narcissus Conference held at South Kensington on April 1, 1883, we owe a good deal, seeing that previously there existed no rule against the affixing misleading specific names in Latin to new seedlings reared in gardens.

In view of the forthcoming Hybrid Conference at Chiswick, we may fitly show here the purport of the resolution then passed. It was proposed by Mr. H. J. Elwes, and seconded by Mr. J. G. Baker, and reads as follows:—

> "Resolved—That in the opinion of this Conference uniformity of nomenclature is most desirable, and that garden varieties of Narcissus, whether known hybrids or natural seedlings, should be named or numbered in the manner adopted by florists, and not in the manner adopted by botanists."

Though this resolution was worded and passed only in connection with the genus Narcissus, it is as naturally applicable to all "known hybrids and natural seedlings" whatever, and as before indicated, a good deal of confusion would have been prevented had such a resolution been passed and acted upon fifty or sixty years ago, or at a time when hybridism and cross-breeding was practically begun in British gardens.

In any case, I trust that the above resolution, or some more clearly-expressed modification of it will be passed at the forthcoming Conference, so that for our own time at least we may have and hold to one uniform plan of naming all cross-bred plants whatever as reared in our gardens.

At the present day hybrid plants possess as deep scientific interest, and one may say, almost, that "the stone which the builders rejected has now become the head of the corner," i.e., that hybrids of known origin are, biologically, most instructive as illustrating the constant progress of adaptation or evolution. We have only to look at Macfarlane's beautifully illustrated study of hybrids, or to read Prof. Henslow's paper on the hybrid greenhouse Rhododendra in the *Journal of the Royal Horticultural Society*, London, or Mr. Hurst's papers in *Nature* on "Orchid Hybrids," to realise what the products of cross-breeding can teach us, provided careful records are made and kept during the progress of the work.

I also sincerely hope that the now vast and widely-scattered bibliography of hybridism and cross-breeding will receive all due attention at the Conference, and that coloured sketches, drawings, photographs, or dried specimens of hybrids, &c., will be exhibited, as well as the living hybrid progeny, and their parents, side by side, whenever possible. Special histories of some of the most remarkable bigeneric and specific hybrids might be given, say, for example, of Messrs. Clibran's hybrid (Urceocharis) between the Urceolina and the Eucharis; some of Messrs. Veitch's wonderful bigeneric Orchids, and their Philageria,* a hybrid between Philesia and Lapageria. Apart from hybrids altogether, there is a wide and fertile field of observation open in relation to those solitary species like Cyclamen latifolium, Primula sinensis, Reseda odorata, Dianthus Caryophyllus and D. chinensis, Crocus vernus, Althæa rosea, Anemone hortensis, Callistephus hortensis, Iris xiphion, I. xiphioides, Zinnia elegans, and many others that have never been known to hybridise with other species, notwithstanding which their cross-bred progeny is so very variable and distinct. Are these natural hybrids?

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* This name marks an epoch in the intelligent naming of garden hybrids, being one of the first of those that give a clue to bigeneric parentage, &c.

As opposed to this class or group of ultra-variable species, we may glance at those ultra-stable species that so far have defied all the hybridist's efforts to cause them to vary in colour or in form, viz., Richardia africana, Tropæolum speciosum and T. aduncum, Vallota purpurea (there is said to be a white-flowered form, but it has never been exhibited), Caladium esculentum, Dielytra (Dicentra) spectabilis, Eucharis amazonica (with one exception only), Gloriosa superba, Anthericum liliastrum, Rosmarinus officinalis, Schizopetalon Walkeri, and many others. It is not contended that seedlings of this last list of species always "come true" precisely, but that they very rarely vary at all, and when they do so it is in a very limited degree.

Then come the questions of "graft hybrids" and of "sports;" the former now and then, even if not often, resulting in cell-unions that lead to a marked modification of after-growth and development, as has been proved in the case of Cytissus Adami, grafted or budded fruits such as Pears, Apples, Vines, Potatos, Tomatos, and in the case of variegated plants, such as Jasmine, Mountain Ash, and Abutilon. Information on these branches of the subject would be very valuable, and might lead to our being able to formulate some general law concerning their appearance under certain conditions.

One great, even if not the greatest, want in the gardening literature of to-day is a good and full alphabetical list of garden plants, as opposed to, or rather in addition to what are called true, or botanical species. Useful though the great *Index Kewensis* is to botanists, its value to the cultivator is sadly marred by the exclusion of garden hybrids and seedling variations, and it is to be hoped that one practical outcome of the forthcoming Hybrid Conference at Chiswick may be some well-directed attempt at a full and, as far as is possible, accurate list of garden plants, with their origin and history, when such are known. In no other way could the Royal Horticultural Society do a higher service to horticulture and its progress than by helping forward a real "Index Hortensis," recording in simple alphabetical order at least the principal plants grown or reared in British and Continental gardens during the past half century.

This, moreover, is no new cry or want, since so long ago as Nov. 19, 1878, Dr. M.T. Masters, in reading a paper "On the Nomenclature of Garden Plants" before the Scientific Committee of the Royal Horticultural Society, used these pregnant words:—"In the first place, an authoritative garden catalogue is a crying want of our times." It seems inexplicable that in this publishing age, when catalogues are flying by post all over the country, "as thick as leaves on Vallambrosa," that we must still plead the want of any good and reliable list of garden plants up to date, and this at a time when the biology of our gardens is more than ever a matter not only of individual but of immense national importance.

In conclusion, let us ask ourselves for a moment what our gardens would be to-day if all the hybrid and cross-bred plants were swept away? As a matter of fact, no absolutely pure or wild species are grown for food, and but few for beauty, if we except the denizens of our parks and lawns, the grasses and the trees. So different in many cases are the cultivated as compared with their wild progenitors, that, as De Candolle tells us in his *Origin of Cultivated Plants*, they are mostly so different as to be unrecognisable. Wheat, Onions, Maize, Sugar-cane, Rice, and many other vegetables either unknown, or so changed as to be praccally unrecognisable in the wild or natural state.

On the other hand, new genera, new species, and new varieties by the thousand, have been born in our gardens. Even in our own days, that is, within living memory, new groups of fruits and flowers have appeared—Melons and Grapes, Peas and Beans, Apples, Pears, and Peaches, either earlier, larger, better coloured, or richer in flavour, or in some other way more desirable, i.e., more adaptable than those that went before.

It is written, that "man cannot live by bread alone," and so, curiously enough, it is in the case of flowers grown for their brightness and beauty, that the greatest strides have been made, and we have merely to glance at the tuberous-rooted Begonia, the modern Cannas, zonal Pelargoniums, Primulas, Cyclamen, Pæonies, Delphiniums, Gladioli of the new Lemoinei and Childsii types. Look again at the new race of hybrid Streptocarpus, for which we are not ungrateful to Royal Kew, or at Mr. Lynch's new race of hybrid Cinerarias, from Cambridge; plants that emulate the best and softest-coloured of Michaelmas Daisies, in their enormous and graceful panicles or corymbs of many-tinted flowers, and which are destined to supplant in many gardens the dense and squat-habited plants with colours as harsh and as violent as are the crudest of aniline dyes.

Even the Mignonette, the modest Violet, Lily of the Valley, and our dearest and sweetest of cottage window-plants, the common Musk, have felt the thrilling touch of the modern magician's wand. Even Queen Rosa is so far like the great Cleopatra herself that "age cannot wither nor custom stale her infinite variety," now that the new hybrid Teas and Noisettes, and even the Sweet Briars have come forth in all their glory.

But the end is not yet. On all sides we may observe the ennoblement and glorification of the hybrid, the cross-bred, and even the seedling, until we are reminded of the canny Scot's dying advice to his son—a saying we may appropriately paraphrase as follows: "Make more hybrids, make more crosses; but in any case, rear seedlings by the dozen, by the hundred, and by the thousand." For in our gardens, as elsewhere to-day, the demand is for added use and adaptability, added beauty, additional variety; and of the last-named, we all know that in its deepest and widest sense, "*La varietie c'est la vie.*" *F. W. Burbidge.*

THE HEPATICA.

For many generations the Hepatica has been grown in British gardens. As one looks upon its flowers open to our gaze, we cannot but think of the flower-lovers of past days, whose eyes—now for ever closed—were gladdened by the Hepatica in the early spring-time. Although the doctrine of signatures gave it a place in medicine, and its name of Noble Liverwort, it seems to have been more prized for its beauty than for its supposed medicinal virtues. When it was introduced into Britain we know not, but it must have been many years ago, as we find references to it in some of our earliest works on plants; and although a few new varieties have been introduced, there has been little improvement for 300 years or so.

Botanically an Anemone, and properly called A. Hepatica, what we know best as Hepatica triloba, was originally introduced from the Continent; but it, or a plant closely akin, and not different in any marked feature, is also plentiful in the woods of North-East America. In Canada it is known to some as the Snow-flower, while in some parts of the United States Liver-leaf is its popular name. According to some, what is occasionally sold as H. acutiloba from North America is distinct. The flowers appear to be the same, and a well-informed correspondent in Canada, who has sent me plants, says that plants with five lobes and those with three are found in the woods together, and that there is some variation in the form of the leaves, one running, so to speak, into the other. From a gardening point of view, there is no difference between the blooms of the two. From comparison of American and European plants in growth, I am of opinion that the latter are neater in habit and more easily grown in our climate.

The large-flowered Hepatica, Anemone angulosa, which comes from Transylvania, has been said to be an American species, but one imagines that this has arisen from the similarity in name between Transylvania and Pennsylvania. So far as I can ascertain, this Hepatica does not occur in North America. Some years ago I saw in the Edinburgh Botanic Gardens a Hepatica named H. transylvanica which did not appear to differ from angulosa, and which, at the time, Mr. Robert Lindsay, then Curator, said appeared to be the same as that species. Another Hepatica with marbled leaves has been called variabilis, but one can hardly consider it as more than a variety of the ordinary triloba.

Some of our earliest gardening books refer to both single and double flowered Hepaticas. The latter have always been prized, and varieties keenly coveted, although less robust than the singles. The best of the double varieties for garden purposes is the peach-coloured one, which, when in clumps, is one of the brightest and most effective of our spring flowers. Its vigour never seems to decrease, and it is as easily grown as ever it was. The double blue Hepatica is, however, always scarce, and it is in few gardens that we see it grow into clumps. Where it does so, one would counsel its owner to be chary of removing it or of reducing its size. In speaking of the double blue, one must not forget that there are, in reality, several varieties differing in shade, in doubleness, and in form.

One can hardly imagine some of these to be forms of the common blue Hepatica, so much darker are they in shade of colour. There are a few shades in what we call the "peach"-coloured double, one here being more of a mauve than that ordinarily grown. *S. Arnott, Carsethorn, Dumfries.*

(*To be continued.*)

SPONTANEOUS HYBRIDS OF HARDY PLANTS.

(*Continued from p. 165.*)

An account of the hybrids of my garden would be incomplete unless I said something about those made by Narcissus. They are especially interesting, because it has been found that several so-called species of the genus may be imitated artificially by crossing two other species, and it has been suggested that these resulting species had their origin in the same crosses made in nature. But I have invariably found that varieties of Narcissus which I know to be hybrids, are either barren or produce inconstant flowers from seed, and that they mostly revert in one or two generations to the original parents. Mr. Alfred Tait some years ago sent me several accidental wild hybrids found by him amongst their parents near Oporto. All these were short-lived and barren. Another distinct wild hybrid is N. pseudo-narcissus var. muticus × N. juncifolius, found sparingly amongst its parents, near Gedre, in the Pyrenees. Of this hybrid, seventy bulbs were collected for me, and distributed by me in one season: the flowers were remarkably constant, but never produced a seed. Equally barren have been N. cyclamineus × N. triandrus, which have come accidentally in this garden. On the other hand, about the year 1886, I collected near Luchon, when in flower, several hundreds of the Narcissus called N. Bernardi, which is N. poeticus × N. pseudo-narcissus. These, in their native mountain pastures, are by no means uniform, varying much, both in the colour and shape of the flowers, but they have proved fertile, ripening seed in my garden in abundance. I made two or three successive sowings of this seed with curious results: a large proportion of the flowers came either simple N. pseudo-narcissus or simple N. poeticus, and of the remainder many were intermediate between N.

Bernardi and one or other of these parents, from either of which the flowers may have been fertilised in my garden.

In the first week of March I noticed in one of my warm borders, two perfect little hybrids, N. pseudo-narcissus minimus × N. cyclamineus, and shall carefully watch them for seed. I have more than once before found hybrids of N. cyclamineus with some larger form of N. pseudo-narcissus, and I think these seem likely to increase and multiply, though N. cyclamineus has a weak constitution here.

Another interesting Narcissus, apparently intermediate between N. juncifolius and N. triandrus, was sent to me ten years ago by Mr. Tait, who found it in the Sierra d'Estrella, and called it N. concolor. It is very dwarf, and has the strong scent characteristic of N. juncifolius. It has proved fertile, and I have raised three generations of seed, all with concolorous flowers intermediate between the supposed parents, N. triandrus × N. juncifolius, but not constant. It is dwarfer and less robust than the old variety of N. triandrus called pulchellus, which is probably also a hybrid. I have grown it in abundance for twenty years, and have never found a seed. It may be N. triandrus × N. rupicola, as it has the same scent of juncifolius.

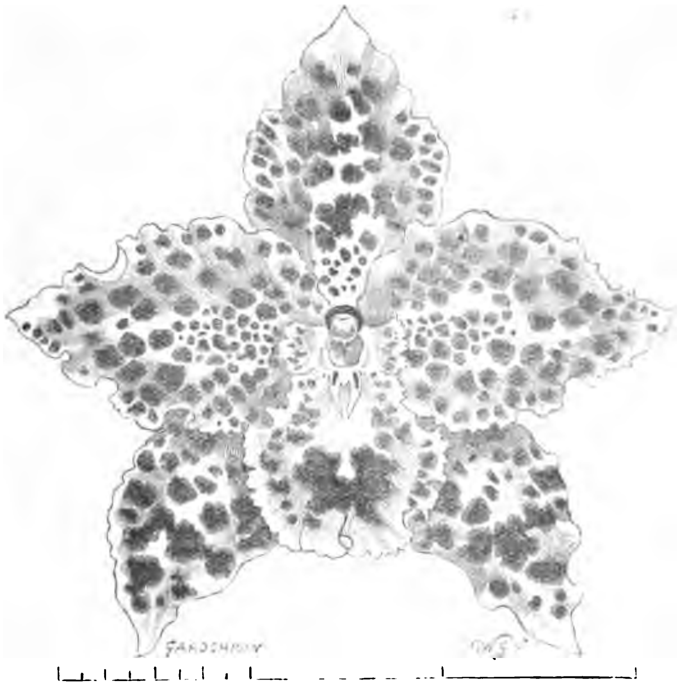


Fig. 61.—ODONTOGLOSSUM CRISPUM "DUKE OF YORK."

Shown by W. Thompson, Esq., Walton Grange, Stone.

For description of which, see "Orchid Committee" in Report of Royal Horticultural Society, in *Gardeners' Chronicle*, March 18, p. 174.

To pass on to hybrids of other Monocotyledons, it is now about four years since a growth of Lilium Martagon var. dalmaticum produced round it several hybrids with its neighbour L. Hansoni—a species on which I never have seen seed. These flowered with me a few weeks before the same hybrid was recorded and figured from another garden. I sent some of my flowers to my friend, Mr. G. F. Wilson, who at once recognised the parents of the hybrid. I may add that the capsules of this hybrid swelled, and produced seed, which my gardener says came up; but for the present I have lost sight of the box or pan in which they are The variety L. Martagon dalmaticum mixes in the border both with the type Martagon and its white variety, and the seed gets scattered about. White seedlings are few; others come true to the dark spotless purple variety; but some bear mixed flowers on the same spike, the dark vinous-purple of dalmaticum and the spotted pale purple of the type being often mixed in the same flower, and even in different halves of the same petal.

Scilla bifolia and Chionodoxa Luciliæ growing together in the same border hybridise freely, the result being very good; but I am not sure whether it is fertile. I have before stated that Scilla nutans seems to coalesce with S. hispanica, producing doubtful forms.

Orchid foliosa makes hybrids with O. maculata. I have for many years grown O. foliosa as a hardy plant. Some years ago, I noticed spotted leaves amongst them, but now that I have picked out many of these hybrids, I find plain leaves are as common in them as spotted. The flower-spike is longer, the flowers smaller, and the general characters and habit partakes of both parents. They make excellent border plants. O. maculata comes up spontaneously in such spots of the garden as it fancies, the seed being plentifully present in the soil. A favourite spot for it to come is the centre of a mass of rhizomes of German Iris. I may mention as a sign of the prevalence of Orchis maculata in the native soil, that, near the garden is a field which had been, for many years, ploughed land, but became full of this flower two years after it was laid down for pasture. In that case the roots may have been dormant in the soil, but I am sure that those in my garden came from seed. *C. Wolley Dod, Edge Hall.*

(To be continued.)

THE TWELVE BEST AUTUMN-FLOWERING CLEMATIS.

Most Clematises are pretty; in fact, it is hard to tell which to class as best with some of the colours. However, I think that Clematis growers will agree with me that the following dozen, which I will try to describe, are of the A 1 quality, both as to growing and flowering properties. Taking them alphabetically, we begin with :—

Anderson's Henryi, belonging to the lanuginosa section.—It is without doubt the best all-round single white. A good grower and free bloomer.

Alba magna, a lanuginosa.—It is the largest flowering variety in cultivation. A pure white, and a good grower.

Beauty of Worcester, a lanuginosa.—This is an indispensable variety with every one. The flowers come double and single, on the same stem. Colour a deep violet-purple. It is distinct from every other dark-coloured Clematis by having a pure white centre. The blooms, too, are either good singles or good doubles, never coming semi-double.

Jackmanni.—It is needless to describe this, the best known of all.

Jackmanni superba is darker in colour than the type. It is a good grower, and the flower is well formed.

Jackmanni alba (Smith's), is a very free-flowering single white. Its flower is smaller than A. Henryi, and has a dark chocolate-coloured anther.

Marie Lefebvre, a lanuginosa.—Colour a light mauve, large, single flower; the plant a good grower.

Madame Grange, a Jackmanni variety.—Colour crimson, tinted violet-red. The petals are very prettily crimped at the edges. It is a good grower.

Madame Edouard André is another form of Jackmanni, the colour a velvety-red. It is of a pleasing colour, and quite distinct from any other. The growth and blooms are free.

Mrs. George Jackman, a lanuginosa var., is a white single flower of middle size, invaluable for cut blooms.

Princess of Wales, also of the lanuginosa type; a deep blush-mauve. A good grower, and a large flower.

Star of India.—Colour a reddish violet-purple. A good grower, and a free bloomer.

This dozen of varieties are autumn-flowering, hence they will be suitable to plant near each other. There are others that are just as good, perhaps, as these in most ways. They are all pretty, but those I have described certainly comprise the cream of autumn-flowering varieties. *C. S. F. A., Waltham Cross.*

FLORISTS' FLOWERS

THE CHINESE PRIMROSE.

The development of the Chinese Primrose forms one of the most interesting and easily followed chapters in floriculture. For a long time we had only forms originating from those originally introduced in 1820. These were seedlings from plants cultivated by the Chinese from time immemorial. Nothing whatever was known of the wild stock whence these cultivated plants must have arisen. Then, some few years ago, the wild plant was discovered in the mountains of South-west China by Dr. Henry and by the Abbé Delavay, growing under conditions very different from those which obtain under cultivation. The early history of the plant, and the account of the discovery and introduction of the wild plant, have been alluded to in these columns on more than one occasion (see *Gardeners' Chronicle*, Jan. 26, 1889, p. 115), and illustrations have been given showing the original form, and that of some of the modern developments.

One great point of interest lies in the fact that all the forms now grown have originated by selection only; there has been no cross-breeding, and the wild form which Messrs. Sutton have in cultivation has, we believe, up to this time, not responded to the blandishments of the hybridiser. That it will do so sooner or later, we have no doubt.

The variations that have taken place have affected the size, colour, and doubling of the flower, the greater or less dilatation of the calyx, the fringing of the petal. The colour of the leaf-stalk, the form of the leaf, the fringing of its edge, have also been acquired, the habit of the plant has been altered, dense tufts of flowers are thrown up well above the leaves, and the ornamental character of the plant much enhanced. Whether any of these variations occur in Nature we do not yet know, as the plant so far has only been found growing under one set of conditions—on hot bare rock; but if the plant can sustain itself under other conditions, no doubt corresponding changes occur.

One of the greatest strides so far as change of habit is concerned has been effected by Messrs. Cannell in their pyramidal strain, of which The Lady was one of the first examples. Instead of a compact truss too lumpy to be artistic, we have an elegant, loosely branched pyramidal inflorescence, which satisfies the taste of many even more than the older forms. Messrs. Cannell are developing their strain by constant selection, and by intercrossing with the older type. The variety Lady Emily Dyke (see fig. 62) shows one of the newer developments of the pyramidalis type.

Is a yellow Chinese Primrose possible? and will it be an acquisition? When recently looking over the remarkable collection of this useful winter-flowering plant Messrs. Sutton & Sons have there, we were much interested in a batch of seedlings obtained from a cross by taking some pollen from a double crimson variety and placing it on a double Carnation-flaked flower. These double forms were more properly semi-double, each having a compact filbert centre of pistils rising from a base, and they are capable of seed-bearing. The first year's progeny was representative of the seed-bearing parent—white with slight flakes or pencillings of rose or crimson. The second year in seedlings from the preceding, the crimson tint predominated. The following year purple began to manifest itself, and the fourth year there was a great variety of tints—one might say everything but yellow. This serves to illustrate the difficulty often experienced in fixing the character of a desirable seedling obtained from a cross of this character, and it throws a little light upon the probable cause of sports seen in some flowers, the act of unmixing at some more or less remote stage of what was originally combined.

But if no yellow appeared from this cross, there were shades of blush-pink, lilac, pale-rose, deep rose, carmine, crimson, &c., with white; some of the tints of rose are very attractive. In some of these seedlings could be seen the passages to a more fully double character, and if this fulness increases, it will be interesting to know if sterility follows in its wake.

Still, hopes of eventually securing a distinct yellow Chinese Primrose, run high. Yellow has shown itself in some flowers where least expected, in the quilled Aster for certain, for though for years past we have known of a tint of sulphur among the white-quilled Asters, it was scarcely expected it would some day suffuse the whole flower—but it has done so. At Reading a successful cross has been effected between Primula floribunda and a garden form of P. sinensis; some of the seedlings are simple reproductions of the pollen parents, but some are of a decided intermediate character, showing quite a combination of foliage. Out of a large batch of these in bloom, we saw a few plants that seem to be markedly distinct in having stout erect leafage, thicker and diversely edged from that of the plants of the ordinary type, flowers diversely shaded, and, though from the same sowing, yet blooming three months later. True, the distinctions are few; but then, no one expects to find diversities to be pronounced hurriedly.

At one time the Chinese Primroses were confined to rosy-purple and white tints, and when there was no thought of keeping seeds of the two varieties apart; but if rosy-flowered Primulas were required it was enough to pick out the plants with tinted leaf-stems. Those with light leaf-stems would produce light flowers. All this is changed now; the purest white blossoms are found on plants with the darkest leaf-stalks, and there is scarcely a striped variety that is not associated with the same foliage. One of the newest developments in white single Primulas is that known as Royal White, a splendid form of black stem and leaves, the contrast being remarkable.

It is many years ago since what is known as the Fern-leaved type of foliage was first developed. The palmate form lengthened and narrowed, and forming a series of lobes at the sides, became known as the Fern-leafed variety. In the early days of its development the leaves were almost erect, and the leaf-stalks long; the latter has become shortened in time, and the leaves are nearly horizontal. They have become darkened, both in the case of the palmate and Fern-leaved types, deepening even to a rich bronzy hue. The leaves of both vary in form, but the type is maintained.

There is now also a mossy-leaved section, in which the leaf-margins are so finely fringed that they are quite mossy, hence the designation.

The range of colours in the flowers, once so limited, have now a wide range—from rich crimsons and scarlets, down to pure white. There are purple and rose shades in course of development, and I should not be in the least surprised if, some day, a true blue colour was reached through one of these. So far, our blue Primulas are pale violets tinted with lilac; and, having regard to the slow progress made in deepening the colour during the past ten years, it is doubtful if a real blue variety will be reached in this way. The deepest colour appears to be seen in the semi-double forms in the Reading collection.

We are not nearly at the end of the improvements in this popular flower. It is not necessary to go further in the size of the corollas, for they are quite large enough. It does seem that if size must be maintained, paucity of bloom will be an accomplishment. The value of the Chinese Primrose as a decorative-plant lies largely in its floriferousness and its succession of bloom. It is an invaluable winter-flowering plant, associating well with other subjects in bloom at that season of the year; and anything cultivators can do to enhance its usefulness will be gladly welcomed.

THE FLORIST'S AURICULA.

The fact that the present spring has brought an unusual demand for the named varieties of the florist's Auricula is a proof that interest in the beautiful and fascinating flower is manifesting itself; it is not often that named Auriculas are advertised for, but that is happening at the time of writing. The increase by means of offsets is slow, very slow indeed, in the case of some of the choice varieties. You cannot force the Auricula into growth to furnish stock, as in the case of some plants; and to attempt to do so spells ruin. They who want plants of a special variety must wait until the plant reaches a point when it will produce offsets. It is possible during May or June to expedite matters by beheading a plant whose main stem has become lanky, and by placing it at the side of a small pot of suitable soil and carefully looking after it, it will root while the trunk will produce stock. There is a certain amount of risk attending the process, but in capable hands it is generally successful. It frequently happens that a retarding spring follows a mild winter, and it would seem 1899 is to be no exception. So far March has been dull, foggy, and latterly cold; and vegetation, except in warm houses, makes but little headway. We are within a month of the Exhibition of the National Auricula Society, and in order to have the plants in bloom by that time some artificial warmth will be necessary. The Committee of the Society have no choice of date; they are bound by the fixture of the Royal Horticultural Society on April 18, and the show must take place. The misfortune is, that those who cultivate in a cold house without the aid of artificial heat can scarcely hope to have plants in bloom. To have plants in full flower by the date above named, the trusses should be well above the foliage by this time, as the named show varieties expand their corollas in a slow and stately manner, and especially the green-edged flowers. The Alpine varieties are earlier in this respect; they come on much more quickly, and expand their blossoms in much less time. In the face of such March weather it would have been better if the show had been announced for the first week in May.

The movement in the plants which took place during the milder weather which prevailed during the closing days of February, has become slow; the conditions of weather are decidedly retarding. The young growths being put forth are tender, and the sharp night frosts which have been experienced have a paralysing effect. Still, the time is one of supreme importance and interest to the cultivator. There is the riddle of this heavily-mealed foliage of some and the mealless deep green of others. No green-edged Auricula has mealed foliage, and but very few indeed of the grey edges; but among the white edges and the selfs they are numerous. It is when the grey edges, taking on more meal than their fellows of the same section, and nearly approach the white edges, that mealed foliage more or less is found. Meal is out of place on the green edges, both on corollas and leaves, except the light sprinkling which covers the solid white paste. What particular purpose the mealed foliage serves in the economy of nature is not clear to the grower. But the densely-mealed leaves of a white edge or a self-coloured flower is decidedly attractive, and specially pronounced when the plants are in the full flush of their summer growth.

Not only have modern cultivators dispensed with the old-time rich foods the fathers of Auricula culture advocated and employed, but they have also largely dispensed with top-dressing, which was formerly regarded as a fundamental element in spring culture. The former debilitated and destroyed many plants; the latter appears to be a needless process of irritation just at a time when the surface roots are active. Air, but no direct cold draughts, plenty of light and careful watering, are what the plant requires at this time of the year. Green-fly are active now; but fumigation with tobacco smoke or spirit vapour will soon rout them. Clean conditions about the plants are also necessary. Given these attentions, and healthy plants, then a successful blooming time may be confidently looked for. *R. D.*

NEW RHODODENDRONS.

THE garden of Henry Shilson, Esq., at Tremough, Penryn, Cornwall, contains one of the finest collections of Himalayan Rhododendrons known. Most of the plants are of enormous proportions, having been planted there more than forty years ago. Seedlings from these old plants have been raised, and freely distributed from Tremough, some of them showing undoubted evidences of hybrid origin. One of the best of these is R. Shilsoni ×, a hybrid between R. Thomsoni and R. barbatum. A large specimen of this has lately been presented to Kew, where it will shortly be in flower in the new Himalayan-house. Through the kindness of Mr. Gill, the gardener at Tremough, I have recently had an opportunity of seeing a collection of the flowers of some of the most remarkable of the Rhododendrons in flower in the open air there in February. Amongst them were typical R. arboreum, with large flowers of a rich blood-crimson colour; the varieties roseum and album, and several other forms of the same species. There were also flower-heads of R. Harrisii ×, which was named two years ago (see *Gardeners' Chronicle*, 1897, p. 418), and which is a hybrid between R. Thomsoni and R. arboreum; and the following new seedlings:—

R. Mrs. Henry Shilson.—This may be called a seedling form of R. arboreum. The leaves are silvery beneath; the head is large and compact, and consists of about twenty-five flowers, each 2 inches long and wide; the lobes revolute, and crisped; the colour white below, bright rose-pink above, with a few crimson spots inside, and blotches of crimson at the base.

R. William Shilson.—This is also a seedling form of R. arboreum, differing from that already described in having narrower leaves, which are dull rust-coloured below, with shorter flowers; also coloured white, with pink lobes, and a few spots on the tube inside, but lacking the blotches at the base.

R. Mrs. Richard Gill.—I take this to be a hybrid between R. arboreum and R. campanulatum. The leaves are shorter, and broader than in R. arboreum, and covered beneath with cream-coloured felt, as in R. campanulatum. The head consists of about thirty flowers, nearly 2 inches long and wide, pale lavender below, darkening to mauve in the lobes, and copiously spotted with deep maroon inside.

All three are first-rate early flowering Rhododendrons. *W. W.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Melons in Frames.—Much that applies to frame-Cucumbers holds good for the Melon: only the soil must be heavier and less rich—in fact, if the loam is of good quality it alone will suffice. It should be made firmer than for Cucumbers, and the bed should, when filled up, remain 4 inches higher at the spot where the plants are put out than the rest of the bed, this forming an important check on on canker in the Melon. Some varieties of Melon will carry three fruits, and others four, the number depending on the size of the fruit. The fruits should be about evenly distributed over each plant, and until rather more than the required number are well set and developing, pollination should be carried on daily. In the case of very heavy loam having to be used, lime-rubble, or lime which has been air-slaked, should be employed. Under no circumstances should liquid-manure be afforded Melon-plants before the fruits left for maturing are grown to half their size.

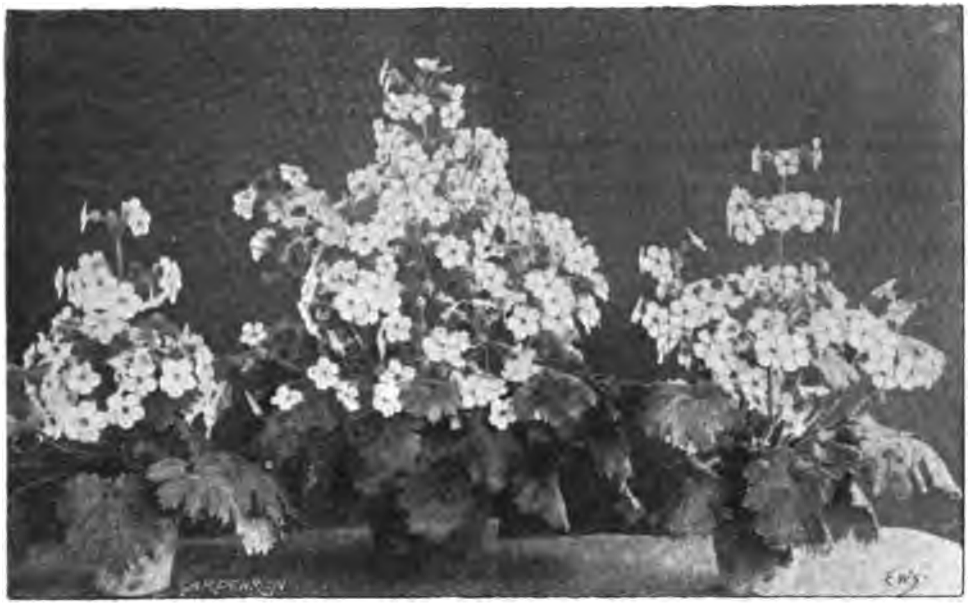


FIG. 62.—CHINESE PRIMULA, LADY EMILY DYKE, FROM H. CANNELL AND SONS (see p. 180).

Figs.—Permanent trees against the back walls of other fruit-houses are now in a more or less forward state, requiring attention in accordance with their actual condition, and if occupying positions in the earlier-started Peach-houses and vineries, they will have reached a stage requiring a general stopping of the leading shoots, or, at any rate, of those not required for extension. In this case, even, it is a much better practice to pinch, say, at 18 inches, rather than allow an unlimited extension of growth, because the latter course does not favour solidity of branch, and without this a regular and even crop does not usually follow. Where there is a tendency to produce long-jointed wood, afford clear water only to the border, and a frequent dusting of lime. Long-jointed branches often comes from overcrowding, the ample foliage of the Fig preventing the full influence of sunshine upon the stems. Upon trees started now, fruits will be ready from July onwards, and if strict attention be paid to early stopping, the fruits which develop upon the new growths will give a useful succession, the more so if the varieties Brown Turkey, White Marseilles, St. John's, and Negro Largo are employed. The removal of superfluous buds now will save much time later on, and the unnecessary waste of energy that such growth entails upon the trees. Fruit-bearing shoots may be relieved of the laterals from their point of issue; in other cases, it is well to allow one leaf beyond, so as to prevent the back buds from making premature growth.

Young Trees may still be planted for permanent use, and where provision was made some time since for propagating by heeling-in lateral prunings outdoors in a cool place, these may be prepared, and treated in exactly the same manner as advised recently for Vines. Another simple mode of propagating Figs is to first cut a 5-inch flower-pot through "lengthwise" with an old saw, and fixing this with wire to a stake and round a last year's branch, previously removing a narrow ring of bark, and afterwards filling the pot with turfy soil and leaf-mould. The ringing of the bark will facilitate rooting, and the pot should be fixed so that the soil will enclose the part where the bark is cut away. The soil should only be kept in a fairly moist state, or it will become sour and sodden before any roots take possession of it.

Vines.—The state of forwardness in the Muscat-house, will now admit of higher temperatures being maintained. While the Vines are flowering, it is advantageous to expose the shoots to all the sunlight possible, and this being so, the tying down of the laterals should only be done to an extent that will prevent injury to the tips from contact with the glass. Muscats should never be left to chance in regard to the pollination of their flowers, but they should be lightly brushed, or the hand drawn carefully over the bunch daily at about noon, paying particular attention to the points of the clusters, as these so often fail to set properly. In the early morning, before any moisture has been distributed over the floor, the pollen is readily distributed by the means above named, or by a brisk shaking of the Vines. Muscat Vines, in a later stage of growth will need to have the laterals pinched back to two or three joints from the bunch, and a selection of the best placed and most fruitful laterals seen to before the final reduction of superfluous shoots is made. Afford the necessary moisture to the roots of the Vines, either before or after the flowering period is passed, so that the house will not be unduly charged with humidity at that time. At the same time, do not allow the borders to become dry, nor suppress too severely the atmospheric moisture, or red-spider may get a foothold and more serious injury ensue. Sub-laterals, during the flowering time, may be allowed a little freedom, as a too rigid suppression of lateral growth is not favourable to a perfect set. Close the house as early in the afternoon as it is safe to do so, and keep the fires as low as practicable during the period of sunshine, and rouse them sufficiently early in the afternoon to prevent the temperature of the house declining below 70°. Ventilate carefully, and do not allow the sun to raise the temperature in the morning before a "chink" of air has been admitted. An excess of air is equally to be avoided. No hard-and-fast rules can be laid down as to time of opening or closing of a vinery, so much depending on the aspect of the house, and whether a lean-to or span-roofed. It is not a good practice to open the front ventilators after the Vines have started. The work of thinning should proceed when possible, but not until it can be readily ascertained which flowers are, and which are not perfectly set. In the absence of sufficient seeds, the berries will swell to the size of Peas only, and for this reason it is unadvisable to make too early a selection of the bunches to be retained. At this stage a surface-dressing of a specially prepared Vine-manure may be afforded in quantity, according to the kind used, previously loosening the surface with a digging-fork, so that the manure can be washed down to the roots the more easily. A good dressing applied now, will be sufficient until the stoning period has passed, provided the border has been well made, and it is fairly extensive. If the borders are small in area, and there are numerous roots, then more frequent applications of artificial or natural liquid manures will be necessary. Shallow borders which require water often, should be mulched; in other cases it is not so necessary. Much, too, will depend on the nature of the soil.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Some species of Orchids needing Cool Treatment.—Amongst these are species which at the present season require more than ordinary care, and Odontoglossum nebulosum, a free-growing, but not always a sure-flowering plant, is one of them. Some of them will not be in a fit condition for re-potting or top-dressing, for the reason that their growth is made at no definite season; the greater number will, however, be pushing forth roots at the base of those young growths which have borne flowers. It is a rather difficult plant to secure in an orchid-pot, because of the fewness of its roots, which are thick and brittle, and seldom penetrate the compost far; but if the cultivator places peat and sphagnum-moss around the roots carefully, the plant may be firmly fixed in the compost. Excepting that it needs a longer and more thorough rest after the pseudo-bulbs have ceased to grow, its requirements are met by affording the same kind of treatment as that which is found to suit O. crispum, with rather more warmth. Odontoglossum Harryanum is another species that will need re-potting or surfacing, as the state of the materials indicates. O. Ure-Skinneri is rarely inactive; and other peculiarities are its mode of flowering, the shape, colour, and disposition of its blooms, and the length of time that elapses between the opening of the first and the last flower, sixty or more being produced in succession. The growths will now be about mid progress, with the flower-spikes emerging from between the leaves, consequently roots will soon appear. As this stage approaches, top-dressing or re-potting will be necessary. If the latter, use clean well-drained pots of sufficient diameter to admit of the extension of the rhizome during three or more years' growth, the base being brought up above the rim of the pot, so that the size of the pot used may not be excessive. The plants may be put into the Masdevallia-house, where the atmosphere is moister and warmer than in the Odontoglossum house. When in vigorous growth afford them plenty of water, and not letting them remain in a dry condition for any length of time.

Oncidiums of the crispum group, such as O. Marshallianum, O. Forbesii, O. curtum, O. prætextum, &c., now rooting freely, may be re-surfaced after picking out much of the decayed materials. Being usually suspended in the cool-house, a good supply of water is required in order to keep the materials in a healthy condition.

Oncidiums excavatum and aurosum need as much warmth as Miltonia vexillaria, and should any of the plants need re-potting, &c., the present is a suitable season for attending to these operations. Do not stint them of root-space or of drainage materials, and employ peat and sphagnum-moss in equal proportions. Afford water sparingly for a time to plants that have been overhauled, and also after growth has ceased for the season, but at other times root-moisture in considerable quantity is required.

Oncidium concolor thrives in baskets or pans suspended from the roof of the coolest house, if afforded plenty of water in the growing season, and a corresponding reduction in the winter.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Carnations that have been wintered in cold frames, if sufficiently hardened off, may now be planted-out, and any layers that were rooted late may be lifted with a good ball of soil to the roots. Place some maiden loam round the roots, treading it firmly, and protect the plants from cold east winds till fresh roots are made.

The Beds.—Bulbs of Narcissus, Crocus, Tulips, &c., that will be left in the beds after flowering should have a sprinkling of bone-manure or basic slag pricked in with a small fork. This will help to strenthen the flowers, and the growth after flowering.

Violas.—Those which were progagated from slips in a cold frame in the early autumn will have made sturdy plants. and being duly hardened off, they may now be planted out, so as to get them established before the warm weather sets in. In selecting a position for Violas, choose an open one, but not exposed to full sunshine, and afford a dressing of fibrous loam and coarse sand, but avoid manure, as it encourages sappy growth. Let each plant be lifted with a trowel, so as to obtain a ball of earth, and press the soil slightly, so that it may hold together. A distance of 9 inches apart will be sufficient, and all flowers should be kept picked off, and the strong stems pinched-back till the shoots meet and form a tuft; when they may be allowed to flower. Assist them by an occasional application of liquid cow-manure. Be sure to remove all old flowers and seed-pods, or the amount of flowers, and the length of time plants will produce them, will not be satisfactory. Violas are most effective when planted as a groundwork to other plants, such as the variegated Abutilon, and Acer Negundo variegata, small pyramidal plants and standards of these plunged in pots with a groundwork of the rich dark violet-blue of Viola Archibald Grant, make a beautiful contrast. Upright bushes of a dark-flowered Heliotrope and the soft yellow Viola Wonder is an effective mixture; as is Viola Blue Bell with the silver-leaved Pelargoniums planted alternately. The beds of these Violas keep good the whole season. Other good varieties are Bullion, yellow, Countess of Kintore, deep purple; Duchess of Fife, beautiful sulphur, orange-yellow centre, edged violet; Lord Elcho, yellow; Mauve Emperor, beautiful mauve colour, and very free; Marchioness, pure white, yellow eye; Goldfinch, yellow, with purple margin.

Dahlias.—Tubers which have been stored away, should now be started into growth by laying them out on a Peach-house border, or in trays, and covering them with a 6-inch layer of leaf-mould. A temperature of 60° will be sufficient to start them. Let them be kept moist till shoots push through the soil, then take them out, cut away all blind tubers, and divide and pot up, and keep them rather cool to encourage a sturdy growth. Tubers of Salvias may be similarly treated.

Clematis.—These effective climbers may be purchased in pots, and planted at this season. They will grow trained against walls, but few persons care to plant them, owing to the difficulty of fastening the shoots, and their bare appearance during the winter months. Clematises look best when creeping over an old tree or shrub, or trained over a pergola or an arch. They are gross feeders, and should be planted in heavily manured soil, and if naturally devoid of lime, some of it should be added. Train the shoots for the first year, and afterwards they will take care of themselves. Clematis Jackmani, C. J. superba, and C. J. alba are effective plants in beds and to cover arches. These require pruning-back hard this month. Clematis montana looks well if planted so as to creep up among the stems of Wistaria sinensis, and both flowering in May, they form a pleasing contrast. Clematis flammula may be planted against a fence or trained over an arch. It develops a mass of small white, deliciously fragrant flowers in August. C. lanuginosa and the garden hybrids produced from it are very beautiful, producing lovely blooms during the summon months. These varieties flower from the wood made the season previously, and only require thinning and tying-in younger shoots.

Bedding.—Myosotis, Crimson Daisies, Primroses, and other spring bedding plants should have the soil made firm round the roots, and receive a good soaking of manure-water at the roots, as well as a light top-dressing. On dry mornings sprinkle them overhead with clear water in order to hasten growth and bring out the flowers early.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Asparagus.—If much Asparagus is taken up and forced annually, a similar number of plants must be planted each spring to keep up the supply. When Asparagus is grown solely for forcing, it is not essential to prepare the land as for permanent beds, and any piece of land in good heart will do if heavily manured and deeply dug. It is somewhat early as yet to plant, but with mild weather the roots will soon be on the move, when planting may safely be done. Having roughly levelled and raked the surface, trample it all over, and rake finely; then draw with the hoe broad drills, deep and wide enough to allow of the roots being spread out and buried 3 inches deep. The plants should stand 18 inches apart each way. Seed of Asparagus may be sown in shallow drills at this date, the seedlings being thinned when large enough to 8 inches apart, and alternate plants taken up the following spring and transplanted; doing this means a little more labour, but it pays. The germination of the seeds may be forwarded by sowing in boxes under glass, the seed being put in 3 inches apart, and the seedling transplanted with a trowel in the month of May. By thus rearing plants in heat, almost one season's growth is gained. The land for forming permanent beds should be heavily manured with rich decayed farmyard dung and a small quantity of soot, and seaweed if obtainable, and be deeply trenched. On light land, salt forms a valuable addition. If the land is intractable and heavy, plenty of road-scrapings or sea-sand are of great use. The plants should be set out 2 feet apart triangle-fashion, the beds being made sufficiently wide to accommodate three rows. Let stout wooden stumps be firmly driven into the ground at the four corners, and an alley 2 feet wide made between the beds. When the plants are planted, rake the surface smooth, and finish-off in a workman-like manner. Beds in bearing should be marked out anew, and the sides made good with soil from the alleys, and a small quantity thrown on the top; but in doing this, do not dig the alleys so deep as to damage the roots.

Cauliflowers.—Those plants which have wintered under hand-lights, say, six or more under each, should forthwith be reduced to the four at the corners, the supernumeraries being lifted with a trowel and planted elsewhere, affording water so as to settle the soil about them, and protecting them for some time longer with hand-lights, or twigs of Spruce Fir or Laurels stuck in on the north side. Cauliflower plants raised from seed sown last autumn, and wintered in cold frames, should be planted out before they become drawn. Let the spring-raised plants standing in frames be afforded plenty of air in mild weather A few of the Dwarf Erfurt may be planted out at a later date 1 foot apart at the foot of a south wall. If there is likelihood of there being a gap between the late Broccolis and the first batch of Cauliflowers, recently-raised seedlings may be pricked off and grown on under glass for the time being, and be similarly treated to those early sown.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Epacris.—As soon as any of these plants go out of flower, the young wood should be cut back closely, at the same time keeping the house somewhat closer, in order to encourage the formation of new growth. If any of the plants require to be repotted, they should be attended to when the young growth is about half an inch in length, using good fibry peat, broken into small lumps by hand, adding a liberal allowance of sharp silver-sand, and some finely-broken crocks or charcoal. The pots should be quite clean, and if new, they should be soaked for a few minutes in a tub of water the day before they are required for use. Should the peat be dry from being stored under cover, it should be sprinkled with water until sufficiently moist. A shift into pots one size larger is usually sufficient, the compost being filled in gradually, and rammed evenly round the ball with a thin rammer, until it is is as firm as the old ball. Care should be taken not to injure the roots in removing the crocks from the old ball, or by using too large a rammer in potting. Extra care will be required in affording water until the roots take possession of the new soil.

Nerines.—These may be afforded an occasional application of liquid-manure, and a position near the glass fully exposed to the sun in a house where the night temperature is kept at about 50°. No attempt should be made to dry off the bulbs until the foliage begins to turn yellow, when water may be gradually withheld. The plants may then be placed in a cold frame, and kept quite dry and unshaded throughout the summer.

Carnation Seed.—If this is sown at the present time, the seedlings will flower in sixteen months; and if the seed be obtained from a trustworthy source, a considerable variety of colour and form will be found in the seedlings. A certain proportion will produce single flowers, and these may be discarded or not, according to the fancy of the raiser; the remainder will consist of blooms of varying degrees of doubleness, from flowers containing only a few petals to those in which the petals are crowded, and between these two extremes will sometimes be found blooms of considerable merit, which the raiser will desire to propagate. If he is careful to obtain his seed from the best sources, he is sure, with ordinary good luck, to obtain some varieties which he will consider very satisfactory. The seed should be sown in pots or pans filled with light soil, covering the seeds slightly, and placing the pans in an intermediate-house, or plunging in a mild hotbed. The seedlings will appear in a week or ten days, and growing quickly, they are soon strong enough to be pricked out into boxes. When the plants are well established in the boxes, they should be removed to a cold frame, and gradually afforded more air. The subsequent treatment consists in potting the plants into small pots, and later into 5 inch pots, in which size they should be wintered.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq. Dropmore Maidenhead.

Crown or Rind Grafting.—Where orchard-trees of considerable size are to be worked with other varieties, rind-grafting is the best method. Assuming that the crown has been reduced in size, cut the branches back to the desired length. If the tree has ten or twelve main branches, two grafts may be placed on each, and in a few years the tree will come into bearing—that is, if grafting is properly carried out; and it will possess a spread of branches equal to that the tree had originally. The stock may, if so desired, be headed hard back to one main stem, and three grafts be placed on this; but my experience with trees worked as the first-named has been more satisfactory, and a full-sized bearing tree is obtained in less time. The lower end of the scion in this method of grafting is for about 3 inches, cut sloping and slightly hollow, almost similar to the first process for whip-grafting; and in the stock a downward slit is made in the bark to correspond in length to the sloped off part of the scion. The handle of a budding-knife or a smooth piece of wood shaped somewhat to resemble the part of the scion to be inserted, is introduced at the top of the slit, and gently pushed down so as to raise the bark, and when it is removed the scion is pushed down in a similar manner. If a second one is to be inserted, this should be placed on the opposite side, and then both should be bound round with matting, and clayed over in the usual manner (see figs. 64, 69, 70).

Cleft Grafting (fig. 63) is often practised in the West country. In doing it, prepare the stock as for crown-grafting, and with a broad, sharp chisel, split the head of the stock, leaving the instrument in, or using a wooden wedge to keep the split open, to allow of the edges being made smooth, and the scions inserted one on either side. Cut these wedge-shaped, and tapering to a point, making them quite thin by removing all the bark on the side that is placed towards the interior of the stock. Place the scions in position, and so that the inner bark corresponds with that of the stock; then remove the wedge, and bind securely with matting, and finish off with a good coating of clay.

Saddle Grafting is not much in vogue, although a somewhat modified form is frequently used in the West, and formed the writer's first lesson in grafting. In this method the stock may be double the size of the scion, although uniformity in size is to be preferred. The latter is cleft for about 3 or 4 inches upwards from the lower end, so that one side is thicker than the other. The rind of the stock is slit down and opened to receive the thicker side of the scion, the thinner being set astride the stock (the point of the latter should be cut off in a sloping direction) and down the other side, a small portion of the bark of the latter being removed corresponding in size to this end of the scion, which should fit closely and evenly to the stock (see figs. 65, 66). Afterwards tie up securely with matting, and cover with clay. This kind of grafting may be practised with success until quite late in the season.

Side or Bud Grafting.—This method, a modification of whip-grafting, is useful for supplying buds to espalier, horizontal, or other trained trees, especially of Apples or Pears, where otherwise the loss of a shoot destroys the symmetry of the tree; and it is sometimes employed in the case of new varieties so as to hasten fruit-bearing. A short slice is notched out of the stock at the spot desired to insert the scion, which in this case carries but one bud, and when inserted it should be exactly in the position it is wished the new shoot should start from, and the bud pointing in that direction. It should be carefully tied in with matting, and a little clay or grafting-wax smeared over the parts (see fig. 67).

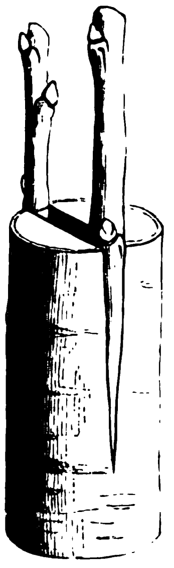


Fig. 63.—CROWN GRAFTING.

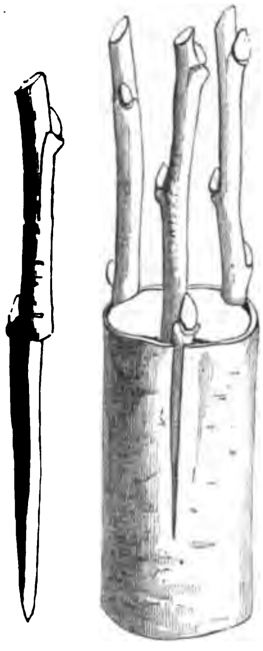


Fig. 64.—CROWN GRAFTING.

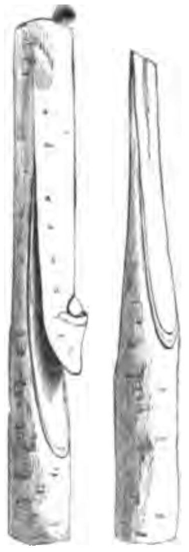


Fig. 65.—SADDLE GRAFTING.

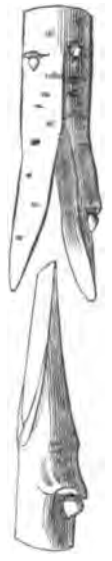


Fig. 66.—SADDLE GRAFTING.

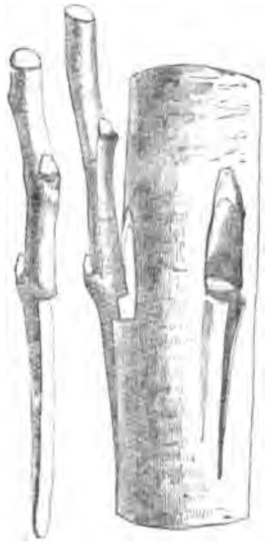


Fig. 67.—SIDE GRAFTING.

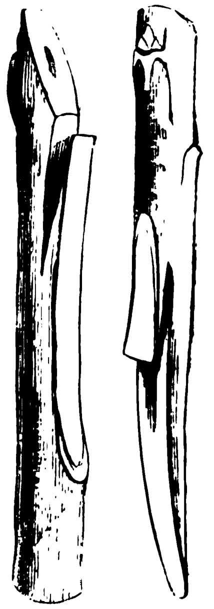


Fig. 68.—WHIP OR TONGUE GRAFTING.

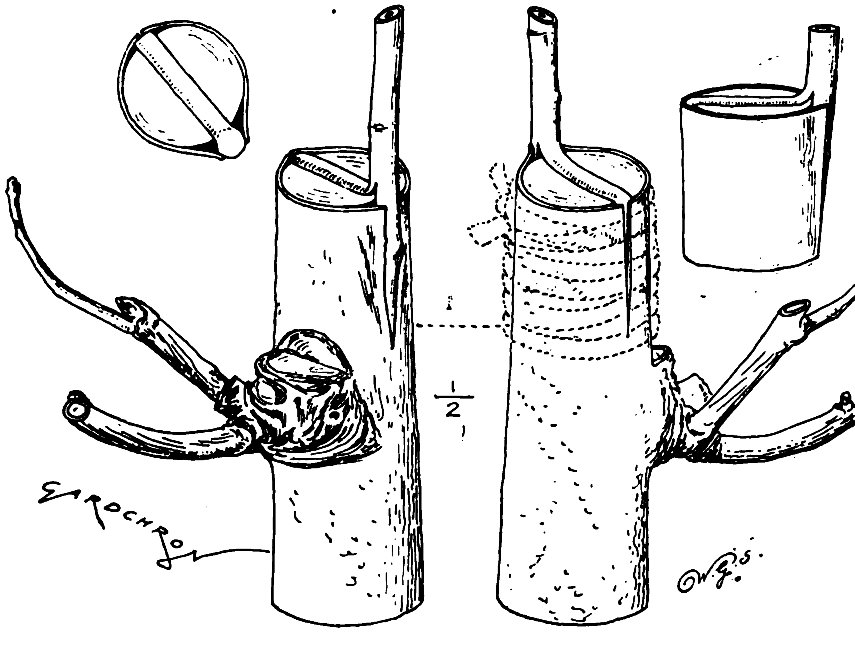


Fig. 69.—SMITH'S IMPROVED METHOD OF CROWN GRAFTING.
Showing the graft in position before it is clayed or waxed.

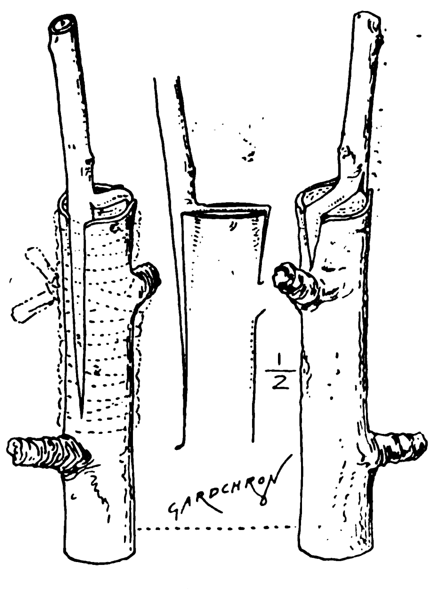


Fig. 70.—SMITH'S IMPROVED METHOD OF CROWN GRAFTING.
Small branches grafted and ready for claying or waxing.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	MAR. 25	—Royal Botanic Society meet.
TUESDAY,	MAR. 28	Royal Horticultural Society's Committees.

SALES.

TUESDAY,	MAR. 28	Imported and Established Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	MAR. 29	Japanese Lilies, Continental Plants, Tuberoses, Carnations, &c., at Protheroe & Morris's Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 12 to March 18, 1899. Height above sea-level 24 feet.

1899. March 12 to March 18.	Direction of Wind.	Temperature of the Air.				Rainfall.	Temperature of the Soil at 9 A.M.			Lowest Temperature on Grass.
		At 9 A.M.		Day.	Night.					
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.		At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 12	W.	48·5	45·9	60·5	37·8	...	41·5	41·6	43·3	28·0
Mon. 13	E.N.E.	42·8	42·6	54·4	37·3	...	43·7	42·5	43·5	29·5
Tues. 14	N.N.E.	33·6	33·5	41·1	29·7	...	41·5	42·8	43·5	27·3
Wed. 15	N.N.E.	32·8	32·0	48·9	28·2	...	39·2	42·3	43·8	24·6
Thu. 16	N.N.E.	35·4	35·2	44·8	27·5	...	38·6	41·9	43·8	22·2
Fri. 17	S.S.E.	40·5	39·9	42·6	35·1	...	40·1	41·5	43·8	32·1
Sat. 18	S.S.E.	42·4	41·7	44·9	29·9	...	39·9	41·7	43·8	25·3
Means...	...	39·4	38·4	48·2	32·2	Tot. ...	40·6	42·0	43·6	27·0

Remarks.—The week ending March 18 was remarkable for five nights and four days of smoky fog, which has left its mark on vegetation. No rain fell since the 8th inst.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—44·7°.

ACTUAL TEMPERATURES:—

LONDON.—*March* 22 (12 P.M.): Max. 42°; Min. 26°.

PROVINCES.—*March* 22 (6 P.M.): Max. 42°, Cape Clear; Min. 31°, York Wolds.

"The Silva of North America."

THE twelfth volume of Professor SARGENT'S monumental *Silva of North America* has been published (Boston: HOUGHTON, MIFFLIN & Co.). It should have been the last, but, as a publisher's note tells us, a thirteenth volume will be required, to contain the general index, and to include descriptions and illustrations of recently-discovered species. The present volume is of particular interest to British cultivators, as it contains accounts and figures of so many of the coniferous trees grown in our parks and arboreta. The history of many of these has been, till recently, a tangled maze, with a correspondingly complicated synonymy and nomenclature; but gradually, as further information has dawned upon us, much of the confusion has been cleared up, and the present work, with its excellent illustrations, will greatly contribute to the completion of this result; though, unfortunately, in some cases, it will have the opposite effect, at least temporarily.

Professor SARGENT'S personal explorations and investigations of the trees in their native localities invest this work with supreme importance. We have long since exhausted our vocabulary of appreciation of the *Silva*, and with reference to this volume we can but repeat what we have previously said.

But the changes in nomenclature which the author has felt it his duty to adopt are simply distressing. They are based upon a system which is not in general use on this side of the Atlantic. A few illustrations will suffice to show how disquieting this new, and, as we think, unauthorised system is. When we come to the Black Spruce, which we had settled to call Picea nigra of Link., we find that in future we are to call it P. Mariana, and if we look to the synonymy, as here given, we find the name Mariana is adopted because MILLER, in his dictionary, called it (*not* Picea), but Abies Mariana; so that, according to the new system, we are to concede priority to the half of a specific name only, even when that half has been placed in a genus that everyone now admits to be the wrong one. The usual practice in this country is to adopt the complete name applied by the monographer who first placed the plant in its proper genus. The idea, in the American system, is to recognise the work of the first investigator, and to give priority to the earliest name. Everyone admits the claims of priority, but then it should be controlled by accuracy of determination, which is a matter of much more importance than mere priority of name; whilst the original author is recognised in the synonymy.

The Red Spruce, which has been so confused with the White Spruce, is here called Picea rubens, a new name, adopted for the purpose of cutting a Gordian knot. The White Spruce, our Picea alba, becomes Picea canadensis, for reasons which it would be tedious to discuss in these pages. The beautiful P. pungens, the blue forms of which are so handsome, is here called P. Parryana, the reason for which change is not apparent. Professor SARGENT tells us that the varieties of this Fir, which are so beautiful in the young state, lose, after a few years, their beautiful blue colour. A tree in our own garden, which has been a model of symmetry and beauty, is now becoming ragged and bare at the base, and losing its exquisite colour; so that there is some fear that this tree, which promised so well in a young state, may lose its beauty as it gets older, and if so, the question as to its name will be of less importance—at least, to cultivators.

When we come to the beautiful Tsuga, generally known as T. Mertensiana, and frequently as Albertiana, we again find an entirely new name, T. heterophylla, for reasons which, if lawful, are certainly not expedient. The Tsuga which we had come to know as T. Pattoniana is now to be called T. Mertensiana, an interchange which will cause the direst confusion. Professor SARGENT, in company with Messrs. CANBY and MUIR, found two species near Sitka, one the Tsuga Pattoniana, the other T. Mertensiana, "and it became clear that BONGARD'S description of Pinus Mertensiana could belong only to the Patton Spruce. Therefore this tree should be known as Tsuga Mertensiana, while another name must be found for BONGARD'S Pinus canadensis. That of RAFINESQUE, published in 1832, Abies heterophylla, is the next oldest name. The possibility of identifying the tree described by RAFINESQUE under this name has usually been doubted, but his description was based on the following account in the Journal of LEWIS and CLARK. . . ." (Here follows the description.)

Surely it would have been better to have made no change in the nomenclature, but to have given a sufficient explanation in the synonymy. BONGARD put the plant in the wrong genus, or in what we now think the wrong genus, therefore his name can only rank as a synonym. RAFINESQUE also placed the plant in the wrong genus, and the identity of his plant is open to doubt, or can only be identified by a passage in some one else's book!

Perhaps the most vexatious change is in the nomenclature of the Douglas Spruce. We had become accustomed to consider this as Pseudotsuga Douglasii; but the name here adopted is Pseudotsuga mucronata, of SUDWORTH, dating only from 1895. This name, "mucronata," is taken from RAFINESQUE'S Abies mucronata. Now, the tree is no Abies, according to our present notions, and RAFINESQUE'S identifications are usually open to so much doubt that they have generally been disregarded (we do not know whether there is less doubt in this case or no).

The variety macrocarpa is raised to the dignity of specific rank rather than of a geographical form.

Abies bracteata, a name dating from 1849, is superseded by A. venusta, dating from 1873, according to the synonymy here given, the change being made because DOUGLAS called it Pinus venusta, preference being given to the prior use of one correct half-name associated with one incorrect moiety.

However embarrassing and vexatious these changes of nomenclature may be to the present generation of cultivators, they do not seriously detract from the great value of the book to botanical students, because an ample synonymy and indices are given, and very often the dates are also appended.

Ample details concerning the geographical distribution, the rate of growth, and the value of the trees for economic or for ornamental purposes are given, so that the *Silva* is a veritable encyclopædia of all that is known with regard to the trees of the North American continent, exclusive of Mexico.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, March 28, in the Drill Hall, James Street, Westminster, 1 to 5 P.M. A lecture on "Some of the Plants Exhibited," will be given at 3 o'clock by the Rev. Prof. G. HENSLOW, M.A., &c.

HORTICULTURISTS AND THE BAILIFF.—Many of our readers have at one time or another attended the meetings of the Royal Horticultural Society at Westminster. Probably many of them are also aware of the mews that run alongside the Drill Hall, and where are baited most of the horses that are necessary to draw the exhibits from the various horticultural establishments to the exhibition. On the occasion of the last meeting, events proceeded as usual so far as the exhibitors were concerned until the afternoon. But, meanwhile, certain events had taken place. It appears that the occupier of the mews had a certain creditor (to the amount of £70) who, for reasons best known to himself, had decided to place the stabling and contents under the care of a county court bailiff. Ordinary business instincts suggested that such a proceeding should take place on a "Tuesday," as we horticulturists know it. On such a day the stables are nearly full of well-conditioned animals. Words are inadequate to describe with what feelings exhibitors learned the nature of the state of things. Persuasion and threats were unavailing, the heartless bailiff, as is his wont, remained unmoved by either. Affairs were rapidly becoming desperate. The plants were likely to suffer injury from remaining in the Drill Hall all night, and the horses were in danger of being sold under the auctioneer's hammer. Happily, the Council of the Society happened to be sitting at the time, and fortunately —from the general exhibitor's point of view—the impounded horses included two animals belonging to Sir Trevor Lawrence, Bt., and his influence in the end saved the situation. The honourable baronet proceeded to the Sheriff's Court and explained the position of himself and his horticultural friends to that representative of British law, and to the intervention of this dignitary do the exhibitors owe the recovery of their living motors. In future, it would appear to be necessary to obtain a written certificate as to the financial circumstances of the owner of a stable, before one determines to entrust his steeds to such a place.

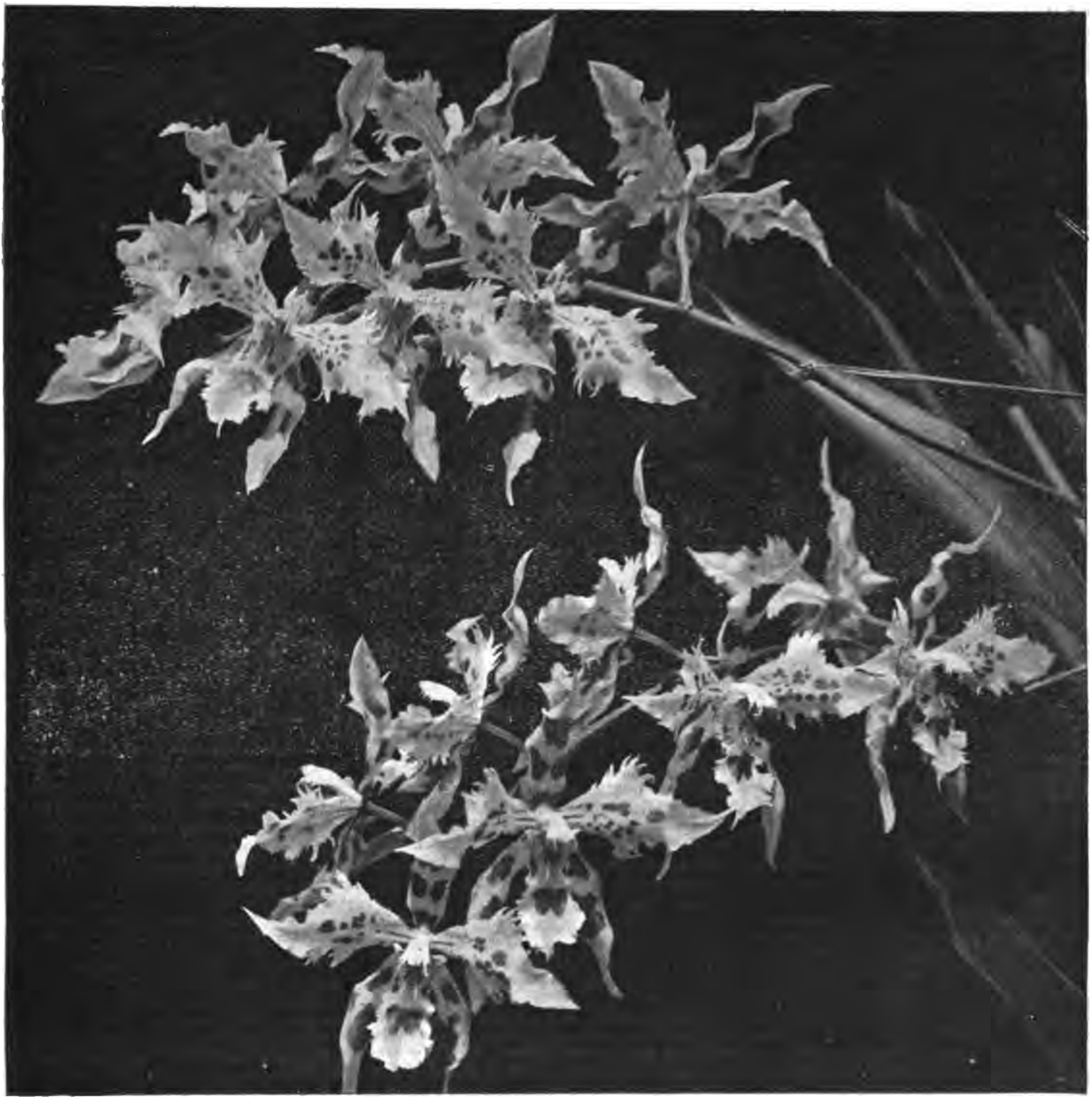


Fig. 71.—Odontoglossum Wilckeanum var. pallens, in Mr. Leemann's Garden, West Bank House, Heaton Mersey. (See p. 188.)

The Nurserymen's, Market Gardeners' and General Hailstorm Insurance Corporation. — The fourth annual meeting of the shareholders will be held at Simpson's, 101, Strand, London, on Monday, the 27th inst., at 3 p.m. The report is very satisfactory, showing an increase of 27 per cent. in the premium income. The directors recommend the payment of a dividend of 5 per cent. on the paid-up capital, a bonus of 5 per cent., and that £200 be added to the reserve fund. The directorate is very strong, consisting almost entirely of the leading members of the trade. The Secretary is Mr. A. J. Monro, 1, King Street, Covent Garden. As the advantages offered cannot be too widely known, the directors draw attention to the benefits of insuring with this Corporation, viz., that those insured can replace immediately their own glass broken by hail, the corporation paying them at the rate per square foot at which the glass is insured. Another advantage, and of which several insurers are availing themselves, is that of being able to cover wholly or partially the value of the contents of their glasshouses by increased insurance of their glass—an advantage offered by no other insurance company.

National Carnation and Picotee Society.—This Society, which has as its president Martin R. Smith, Esq., appears, from its twenty-second Annual Report, to have experienced a most successful year, as with the end of its financial year it had a balance in its favour after meeting all expenses of no less a sum than £253 15*s.* 7¼*d.* The total receipts amounted to £526 9*s.* 9½*d.*, Mr. M. R. Smith's special prizes amounting to the sum of £19 7*s.* The prize-money disbursements amounted to £182 16*s.* 6*d.* In regard to the various sections of Carnations, much improvement has been noted in recent years in selfs and fancies, and more especially in yellow-coloured selfs, fancies, and Picotees. Flakes, bizarres, and whites are said to be stationary, although improvement may be confidently looked for. The Society distinctly claims to have been instrumental in bringing about this satisfactory state of things. The schedule for the present year has been revised to a considerable extent, and some new classes have been added. Moreover, the dressed blooms are divided into three sections, so as to suit the different classes of cultivators—a very necessary alteration, as by this arrangement the competitors are placed on a more equal footing. This scheme was devised by the President, who also gives a Silver Cup to each section to be awarded to the exhibitor gaining the greatest number of points in that section. Attention is called in the report to the new "triplicate blooms" in the third division, and to the exhibits without dressing or cards, which, it is hoped, may prove attractive to exhibitors. A list of the winning varieties being now published in the annual report, it is not considered to be necessary to hold an election of varieties as has hitherto been done.

Southern Counties Carnation Society.—This Society presents its first annual report, and we are enabled to gather from the gratulatory opening paragraph, that success has waited on its venture as a rival of the National Carnation Society in its bid for support among the cultivators and admirers of Carnations. The members number at the present time 200. The first exhibition, held in July last, was a success, although the season was adverse and the day rainy. The committee feel that the thanks of the members are due to Mr. William Garton, jun., for his exertions to make the Society a success. Mr. A. Johnston, 26, St. Mary's Road, Southampton, is the assistant secretary, to whom all communications should be addressed.

The "Journal of Horticulture" for March 9 is worthy of preservation as containing a sympathetic account of many of the principal writers in that much-esteemed periodical, together with portraits of some of the principal contributors from the time of its establishment till the present time. Thus, we find portraits of Robert Errington, Donald Beaton, Pearson of Chilwell, Thomas Rivers, and George Abbey, not to speak of others happily still with us.

Dante, and the Action of Light upon Plants.—In a recent number of *Nature* is a very interesting article on this subject by Professor Italo Giglioli. The Professor gives several illustrations proving that the great Italian poet had sound ideas as to the action of solar heat and light upon plants, and that his views and those of his contemporary, Pier de Crescenzi, were far in advance of the time. It was not till the time of Ingen Houss and De Saussure (1774-1804), indeed, that the truth was demonstrated. The following passage from Dante may be set by the side of those which recall the fact that in the consumption of coal we are but liberating the sun-heat and light stored up in primæval forests, and that Cucumbers and other fruits are so much "bottled sunshine."

> "Behold the sun's heat which becometh wine,
> Joined to the juice that from the Vine distils."

These verses are stated to have been suggested by a passage in *Cicero de Senectute.* In their turn they influenced Leonardo da Vinci in the belief that "the sun giveth spirit and life to plants, and the soil with its moisture nourisheth them." Galileo believed that wine is a compound of light and sap; and Dante asserted that both oil and wine are formed by the action of solar heat and light on plants. Pier de Crescenzi (1305), a contemporary of Dante, laid special stress on the action of heat and light on plants, and alluded to the hardening influence of light upon vegetable tissues (ripening of the wood in gardeners' phraseology). "Plants in warm weather," says Crescenzi, "grow in the darkness of night, and in the heat of the sun they harden and become woody." "The splendour of the ancient literature," says Prof. Giglioli, in conclusion, "dawning again upon Italy, overpowered the rising of the new science. The generations that followed Dante became more erudite than learned; and the new knowledge slept again through the centuries, just showing life with Leonardo da Vinci and a few others, until the unlocking of the gates of sense and the kindling of a greater natural light in the days of Bacon and Galileo."

Floral Decorations (?).—A pillow for the funeral of a wholesale butcher at Toronto was "adorned" by a floral device representing a blue bull in the centre, with head down and tail erect. We take this "elegant extract" from the *Florists' Exchange.*

The Topographical Botany of the West of Scotland.—A work on this subject, by Mr. Peter Ewing, F.L.S., is announced as ready for publication. The country embraced extends from Ayrshire to the Hebrides, and includes fourteen of the Watsonian vice counties, details of which are given in the introduction, so that they can be easily traced on any map of Scotland. Remarks are made on doubtful natives, nomenclature, Rubus, Rosa, Hieracia, and Salix. An index is given to all the genera recorded, also a list of author's surnames in full, commonly attached to the name of a plant in an abbreviated form. The work extends to about 200 pages, demy 8vo, is bound in cloth, and is published at 2*s.*

"Willing's Press Guide."—This is a list of the newspapers published in the United Kingdom and elsewhere. The list is, in the first instance, alphabetical, and in the succeeding pages, classified according to subjects. No fewer than twenty-one publications relating to gardening are specified. Another section contains lists of the newspapers and other periodicals published in the various counties of Great Britain and Ireland. A list of the principal newspapers published in the colonies, in the United States, and on the Continent of Europe is given, so that the book is of the nature of an encyclopædia.

Horticultural Club.—The usual monthly dinner and conversazione took place on Tuesday, 14th inst., at the rooms of the Club, Hotel Windsor. The chair was occupied by Mr. R. Gofton Salmond. The subject for discussion was the planting and pruning of single Roses, and was opened by Mr. George Paul, V.M.H., who said that a different system must be adopted in their planting to that which was pursued in the case of Hybrid Perpetuals, Teas, and Hybrid Teas. There were three ways in which, he said, they might be advantageously used: trained horizontally so as to form a fence or hedge, and for this purpose he advocated hurdles (on which the Roses might be trained), and supported by five barred iron fences; they might be most advantageously used as single specimens on lawns, supported by a Larch pole; or as single plants in shrubberies amongst other flowering shrubs. With regard to planting, it must be remembered that as they are to remain permanently, they should have more space afforded them than the ordinary dwarf H.P.'s or Teas, and liberal provision should be made for their future welfare. A hole, about three feet in diameter, should be made and filled with good Rose-compost. With regard to pruning, it was necessary to bear in mind that they should be treated very differently to the H.P.'s and Teas, only requiring the three-year-old wood to be cut away, the two-year-old wood to be laid in, and the one-year-old shoots very slightly shortened. A very interesting discussion followed the paper, in which all present joined, and a cordial vote of thanks was awarded to Mr. Paul for his interesting paper.

Old World Gardens.—An exceedingly bright and interesting collection of water-colour drawings, by Mr. E. Arthur Rowe, is at the present time on view at The Dowdeswell Galleries, 160, Bond St., W. Old-world gardens, in a good state of preservation, are not numerous in this country, and they are constantly being sketched by artists. Many of those now very exquisitely reproduced by Mr. Rowe have been seen before from the brush of such practised artists as Mr. Parsons, Mr. Elgood, and Mr. Fulleylove. We refer in this instance to pictures of such places as Penshurst Castle, Montacute House, Levens Hall, Bulwick, Arley, Loseley Hall, Berkeley Castle, Haddon Hall; the topiary work, and the Yew-walk, Elvaston; views at the Villa Palmieri, Villa Borghese, and others—old friends all, but none the less worthy of seeing through another artist's eyes.

Apples from the Antipodes.—We have been informed by the officials of the Orient Company that the *Oruba*, from Hobart, due April 15, will bring 7,000 cases of Apples; and the *Oceana*, due on the 22nd proximo, will bring 10,500 cases.

A Spring Flower Show at Ealing.—This is now an annual occurrence, and is arranged by the members of the Ealing and District Gardeners' Society in aid of the gardening charities. The above exhibition took place in the spacious Victoria Hall on the 21st. inst., the proceeds to be divided between the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund.

The Severity of the Weather during the past week is evident from letters we have received from numerous correspondents. On the night of the 20th inst., we are informed, that at Broxbourne (Herts), there were 20° of frost, at Catford 18°, at Gillingham, in Norfolk, as much as 27° of frost, and at Woburn 34° of frost, or 2 below zero!

Cape Fruit.—The Union Company's steamer, the *Moor*, from the Cape, brought 189 boxes of Grapes, 36 of Plums, 7 of Tomatos, and 8 of Bananas. The Grapes, mostly white, were in good condition, and have realised good prices; a few boxes were Black Hermitage—small and poor; the Plums were again of excellent quality, though not quite such large fruits as those already received. The Bananas were from Natal, and shipped on deck. These arrived in quite a rotten condition, which seems to show that the fruit will not carry well in some cases. The Tomatos were a private consignment.

Kew Men.—The value of the training given to gardeners employed at Kew is shown by the number that obtain good situations from that establishment. We learn that since January, 1898, eighteen first-class appointments have been made from Kew, including seven curators and assistants of botanical gardens in the colonies and

India, two collectors in Africa and China, five head gardeners, and four nursery foremen. Applicants for employment at Kew must be over twenty, and under twenty-five years of age, and they must have had a good training before entering Kew for the two years' course given. It will be seen that these appointments are filled by comparatively young men. Applications should in the first instance be made to the Curator, Royal Gardens, Kew.

A Market Gardener and a Welsh Coal Strike.—An interesting case was settled on the 16th inst. in Mr. Justice Grantham's Court, when Mr. Green, of Riverside Vineries, Hampton, sued Messrs. Cann & Co. of Swansea, for damages arising out of failure of contract. Mr. Green had contracted with Messrs. Cann & Co. in November, 1897, to supply him with sixty tons of anthracite coal at such times and in such quantities as he should require. The colliers strike, however, prevented the defendants from keeping the contract. Mr. Green had six large greenhouses containing 11,000 Tomato plants, and some Beans for forcing. He could not obtain the coal contracted for, and estimated the value of crops thus lost at £435 for Tomatos, and £422 for Beans. Council for defendants contended that plaintiff was not entitled to claim for loss of crops, but the difference only between the contract price with defendants and the price at which he could have obtained the necessary fuel elsewhere. The court accepted this view, and after expert evidence had been given that plaintiff could have obtained the 35 tons of coal which defendants failed to supply at a loss of £8 2*s*. 6*d*., this sum was awarded to plaintiff.

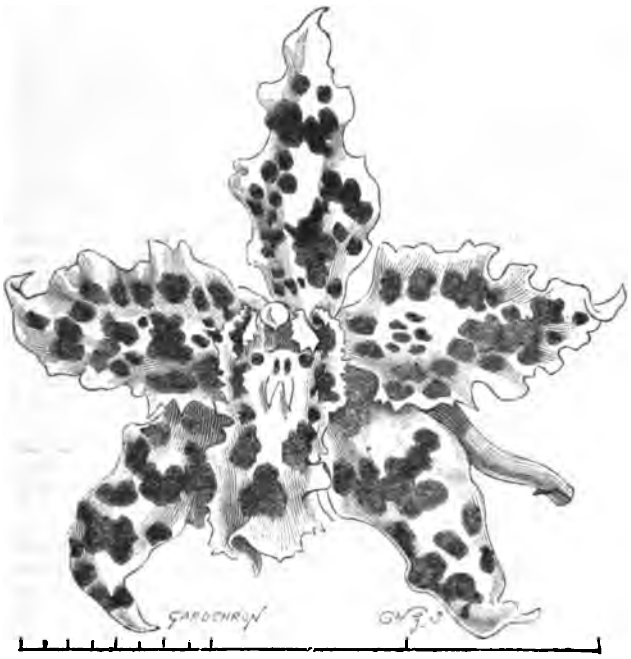


Fig. 72.—Odontoglossum crispum "Mrs. John Leemann."

For description of which, see "Orchid Committee," in Report of Royal Horticultural Society, in *Gardeners' Chronicle* for March 18, p. 174.

Hardy Fruit Culture.—At the meeting of the Chiswick Gardeners' Mutual Improvement Association on Thursday, March 16, a paper was read by Mr. R. Lewis Castle, Manager of the Woburn Experimental Fruit Farm, on "Hardy Fruit Culture, its Problems, Profits and Prospects." The problems were classed under the heads of Tree formation and Fruit production, special reference being made to stocks, budding and grafting, pruning, planting, manures and cultivation, as affecting growth or fertility, while, as regards the latter, particular attention was called to the influence of foreign pollen, and the advantages of interpollination in counteracting sterility. The average gross returns per acre from fruit culture were noted, and the average expenses, together with the essentials to success. In regard to the prospects, it was contended that if the United Kingdom is favoured with peaceful times, there is a great future before the cultivator of hardy fruits, because the value of these products, as an important part of a healthful diet, is rapidly becoming more generally recognised. The discussion was opened by Mr. S. T. Wright, Superintendent of the Chiswick Gardens, who detailed many experiences in support of the principal points. He was followed by Mr. E. Camp, Mr. A. Bridges, Mr. J. Fraser, and several other members, in an animated, interesting, and prolonged discussion, at the conclusion of which Mr. Castle briefly replied on the various points, and the proceedings closed with a unanimous vote of thanks to Mr. Castle, proposed by Mr. S. T. Wright, and seconded by Mr. A. Bridges.

The Natural History of Plants.—The admirable work by Herrn Kerner von Marilaun and Prof. Oliver is now being issued in parts, with the original illustrations and letter-press, by the Gresham Publishing Co. It can only be obtained from them or their agents by subscribers.

Potato-grafting.—M. Bornet, in a recent number of the *Journal de la Société Nationale d'Horticulture de France* (p. 193), alludes to an observation of M. Strasburger that atropine has been detected in the tubers of Potatos on which Datura Stramonium has been grafted (Berichte d. Deutschen Botanischen Gesellschaft, p. xxxvi.). This is a very remarkable illustration of the effect of the scion on the stock; but it is not an experiment that it is desirable to repeat outside the laboratory, or, at least, the experimental plot.

"The Smithsonian Report."—The Annual Report of the Board of Regents of the Smithsonian Institution to July, 1896, has reached us, and the contents are, as usual, of great interest. The volume includes a general appendix devoted to papers on Astronomy, Mathematics and Mechanics, Physical Geography, Recent Advances in Science and their Bearing on Medicine and Surgery, Processes of Life Revealed by the Microscope, Biologic Relations between Plants and Ants, &c. There are numerous plates, some appealing chiefly to the scientist; others, those, for instance, representing samples of ancient "pueblo" work from Arizona, of more popular interest. They are indeed beautiful reproductions of wonderful specimens of primitive handicraft. The paper on the Biological Relations between Plants and Ants is a clear account of a subject engaging the attention of both botanists and entomologists. The author (Dr. Heim) is fully up to date in his facts and observation, while the general tenor of his opinions may be gathered from his own words, that:—"Disregarding the sufferings and death of individuals, evolution tends to establish between beings primitively rivals a *modus vivendi* that assures the free expansion of the species; a progressive expansion that must soon find its limits in the new struggle that species, triumphing by their union, must make against neighbouring species."

Continental Novelties. — The list of novelties issued from the National Arboretum and Alpine Garden of Zöschen, near Merseburg, is so large, that we cannot enumerate them individually. They comprise deciduous trees and shrubs, Magnolias, Ilexes, &c. The catalogue of alpine plants issued from the same establishment is also very rich.

Cold in Florida.—We are so much in the habit of bemoaning the variations of our own climate, and its many drawbacks, that it may be of advantage to us to see that climatal variations are met with even in the Gulf of Mexico. The following extract from the *American Florist* may be of interest as confirmatory of the remarks of a correspondent at p. 158.

> "On the nights of February 12 and 13, and also during the days, we experienced such weather as we have never had before. The temperature went down to 6° above zero; the lowest we have ever had in later years was 15° above. The condition of our gardens is hard to describe. Not only private gardens are ruined, but there is a heavy loss among the florists. Some of them count their loss by the thousands of dollars, and a good many of them are satisfied to have lost only a few hundreds. You know that the majority of our tender plants are raised in hot beds. They were no protection at all against 6° of cold. Our greenhouses were not heated enough nor closed enough. It will teach us a lesson for the future. Even our Roses, chiefly Teas, are all dead. Fig-trees, different Magnolias, and sweet Olives, as old as New Orleans, are peeling off their bark. Phœnix canariensis, which had stood every winter before, will be killed, or, at least, badly damaged. Chamærops seem to have stood the most. Many orders will have to be sent north to replace our loss." *The American Florist.*

General Horticultural Exhibition at Lyons.—The Société d'Horticulture du Rhône is organising a general Horticultural, Artistic and Industrial Exhibition, to be held at Lyons from the 3rd to the 12th of November, 1899. This exhibition will be coincident with the fourth Congress of the Société Française des Chrysanthemistes, and a grand International Chrysanthemum Congress will be held at the same time. Numerous prizes, medals, and other awards are offered in connection with the various sections, the programme for which can now be obtained from M. G. Chabanne, Secrétaire-general, Palais des Arts, Lyon (Rhône). Special railway facilities are offered to intending exhibitors.

WEST BANK HOUSE, HEATON MERSEY.

Within a short distance of Stockport, the great centre of the cotton industry, the beautiful gardens of J. Leemann, Esq., some 15 acres in extent, and containing one of the most select and well-grown collections of Orchids in the country, afford a remarkable instance of what a successful man of business with a love of horticulture can accomplish in a very short time. The beautiful gardens, and the dwelling-house, with its conservatories, have been brought to their present perfect state in less than four years. The owner of late has made the more showy Orchids his chief recreation, but not the only one, he having an earlier hobby in the collection of tropical butterflies and moths, both being due to extensive travels in out-of-the-way parts of the world.

The Orchids.

These plants are elevated to the chief place in the gardens, and evidence of them was immediately found in the cut flowers of Cattleya Trianæi and other species arranged in the dwelling-house. In the conservatory adjoining the billiard-room was a fine bank of Orchids in flower, which we were informed is maintained the year round without any noticeable injury to the plants; firstly, because the electric light is used; secondly, by reason of the plants being afforded water with care and kept dry rather than wet; and thirdly, the flowers are cut from the plants when a reasonable time has elapsed.

This fine bank consisted recently of the finest selected varieties of Cattleya Trianæi, showy Dendrobiums and Odontoglossums. Of the former the colours range from pure white, to white with ruby lip; and through all shades of colour to rich rose-crimson, the form of the flowers in all cases being perfect. The handsome West Bank House variety, is remarkable, not only as regards its flowers, but from its growth, which suggests Cattleya Warscewiczii. In the study close at hand were portfolios of coloured drawings of most of the finer Orchids, the arrangement of the drawings rendering comparison easy. Of the Dendrobiums, the unequalled D. nobile nobilius, of which there were many specimens, stand out prominently. Then come D. n. Ballianum, a contrast, the blossoms being nearly white. D. n. Cooksoni, with its quaintly-coloured petals; D. n. Cypheri, white, with maroon centre, and rose-coloured tips; D. n. Sanderianum, one of the most beautiful in colour and shape; and others equally good, which have come with various importations. Of other Dendrobiums, the handsome forms of the class of D. × splendidissimum grandiflorum, which, like the stronger forms of D. nobile, Mr. Edge, the gardener at West Bank House, succeeds in getting flowering growths of upwards of 4 feet in height, and proportionately stout; D. nobile albiflorum, D. × Ainsworthi, Cypher's variety; D. Wardianum, and D. W. album, and others appear to advantage. At the back of the bank were fine specimens of Cymbidiums just expanding their flowers, the front being made up with Cypripediums, which, although not liked so well by Mr. Leemann as Cattleyas, Lælias, and hybrids of these genera, are still of use in decorative arrangements. There were remarked also C. villosum giganteum, the finest form of the species; C. × Creon, C. × nitens superbum, and the best forms of C. × Calypso, C. × Lathamianum, &c.

The Winter Garden.

This structure is on a lower level, and here were seen some good Cymbidiums, intermixed with fine foliage plants. The other plants in this garden consisted of specimen Camellias, which were beginning to blossom. Presently the commodious block of Orchid-houses, constructed under Mr. Leemann's direction by Messrs. R. Halliday & Co., of Middleton, was reached, in which was found a sturdy collection of Cattleyas, Lælias, and Lælio-Cattleyas. The last-named race of crosses, of which a grand collection was remarked, take the lead. Flowering for the first time, as we were told, was a grand novelty in Cattleya × Octave Doin, having a flower with a certain resemblance to C. × Hardyana, but with evidence of C. Mendeli in the elongated, crimped, ruby-crimson coloured lip. Other remarkable plants were Lælio-Cattleya × Amy Leemann and L.-C. × Marguerite Maron. In both cases L.-C. × Schilleriana is probably the parent, and not L.-C. × elegans, and the parentage would seem to indicate forms of L.-C. × Henry Greenwood—but a comparison has shown them to be distinct, as they are florally more showy, especially in the development of the front part of the lip; a fine plant of a hybrid between Cattleya Warscewiczii and L.-C. × Dominiana, said to bear flowers 11 inches across; another between Lælia tenebrosa and L. Digbyana, and various other singular crosses, most of which will soon bear flowers. Of other showy hybrids there are numbers of Lælio-Cattleya × Canhamiana, L.-C. × callistoglossa, L.-C. × Aphrodite, and many other showy hybrids which never fail to afford variety. There were noted vigorous plants of Lælio-Cattleya × Berthe Fournier, L.-C. × Arnoldiana, L.-C. × Sallieri, L.-C. × eximia, L.-C. × Gottoiana, and most of the other showy Lælio-Cattleyas.

Favourite things, and especially those certain to produce fine varieties or natural hybrids, have been purchased unflowered in quantity, preference being given to Cattleya aurea. The venture has already been productive of many splendid C. × Hardyana, and out of the hundreds still unflowered, some remarkable forms will probably result. More than one were credited as "white gigas," and these are being watched with great expectation.

The Odontoglossum Houses.

These form another notable feature, sharing with the Dendrobiums the second place after the Lælio-Cattleyas and Cattleyas. The strain of O. crispum is a very fine one, some of the flowers at present showing being circular, and of large size. One group of them has been remarkably prolific of crosses, some splendid O. Andersonianum, O. Ruckerianum, O. Wilckeanum, &c., having flowered out of it. One of the more beautiful is O. Wilckeanum var. pallens (fig. 71), which has nearly white flowers, spotted with red-brown, and which, although in colour approaching O. crispum, it forms a well-defined example of O. × Wilckeanum, although departing from the ordinary type of that species. Many other strange-looking hybrids, or probably spotted forms of O. crispum were in bud, and full of promise. Many fine O. triumphans and others were also in bloom.

The Dendrobium-house

was a scene of luxuriant growth and good flowers, and among other remarkable subjects were two of Cattleya labiata Peetersana superba, which were carrying flowers of an intense purplish-crimson, similar in colour to those on the plant which recently realised such a large sum of money, but they were larger, and of better shape. C. Trianæi Constance Leemann, and C. T. Empress, are two very distinct and charming varieties; Lælia anceps Leemanni, the largest and finest-coloured L. anceps; two superb, round-flowered Vanda cœrulea; some fine Lycaste Skinneri alba; Odontoglossum Ruckerianum illustre, a very showy form, were remarked. In every class only those which are superior are retained.

The Gardens.

The land forms an undulating slope towards the south, and the chief noticeable features are the immense beds and borders of fine Rhododendron hybridum, which in their season must form a gorgeous display. The garden is protected by plantations of Hollies and Conifers, whose front borders are filled with bulbous and herbaceous perennial plants. Here and there we noted beds planted with Carnations and Auriculas; and beyond is a large fish-pond, fed by a natural spring. To the left is a miniature farmyard, and beyond this come the fine new ranges of fruit-houses and the kitchen-garden, and at the further extremity of the last is the gardener's house. The whole is brought into communication by telephone; time and labour-saving appliances appear on all hands, and but little could be suggested to improve Mr. Leemann's plan, which embraces the making of a new garden to look like an old one, and to further which idea fine old standard Hollies, Irish Yews, &c., are introduced, and climbing Roses and other rustic trailers profusely arranged in salient spots.

HOME CORRESPONDENCE.

ROYAL GARDENERS' ORPHAN FUND.—"A. D." made some pertinent remarks on the above Fund in the *Journal of Horticulture* on February 23. He deplores the fact that not one of the fathers of the nineteen children nominated for election this year had been a subscriber to the Fund, and also to the indifference of gardeners generally in not becoming subscribers, and asks, "Can anyone explain it?" I am afraid it is difficult of explanation. A glance at the list of subscribers for 1897 reveals the fact that many men occupying prominent positions as head gardeners do not subscribe to the Fund, and whom we may assume could well afford the sum of 5s. or more per annum. It is possible the claims of the Fund have not been brought home to them by personal solicitation; but the large majority of gardeners are poorly paid, and can ill afford even the small sum of 5s. per year [This cannot be true of gardeners as a class. Ed.], and especially as they have no guarantee that their children will receive the benefits of the Fund should they require it. As a worker for eight years on behalf of the Fund, I have solicited scores of gardeners to become annual subscribers, and what is the result? I have four gardeners on my book, the remainder being nurserymen and private ladies and gentlemen. Some whom I have asked say, "We have no guarantee that we shall receive any benefit; we have no voice in the management, as we live at too great a distance from the place of meeting. It is those living near who can do as they like, and pull the strings on behalf of any candidates for election." I do not endorse these views, but have every confidence in the executive committee; and I should like to impress on the great body of gardeners the necessity of becoming annual subscribers, and if there is anything in connection with the Fund they do not approve of, let them make it known through the horticultural press or otherwise. I know from experience the editors are pleased to give the humblest individuals every opportunity to express their grievances. The time will come when it will be the children of subscribers who will benefit by the Fund; but it must not be two children from one family to the exclusion of children from other families whose claims are equal or more deserving. At the last annual meeting the following was added to Rule XI.—"Not more than two children of the same family can be in receipt of the benefits of the Fund at the same time." Previously, the rule did not specify how many children from one family might receive the benefit of the Fund. But why should two of one family receive the benefit of the Fund, while other families are left out? Surely the Fund is meant to benefit a number of families, and not the few. At the present time eight families have each two children on the Fund, each child being allowed 5s. per week. Mr. A. Dean suggested that at a future time it would be expedient to insist that there must be four children under 12 years of age in a family before two of its members could be on the Fund at the same time. I do not agree with him there. I suggest that only one child from a family shall receive the benefit of the Fund, unless under exceptional circumstances, such as the loss of both parents. Also, I would further suggest, that should the circumstances of the case require it, the child of a deceased subscriber who has subscribed for five or more years, shall be entitled to the benefit of the Fund without election. Or, the child might be allowed twenty or more votes for each year the father had subscribed. I know these suggestions require consideration, but it is in the interest of the Fund I make them, and I expect to hear the opinions of others; and possibly the Executive Committee may be induced to consider them, and so make the Fund of still greater benefit, and, perhaps, by so doing the great body of gardeners will be encouraged to become subscribers. *J. B. Stevenson, Hon. Local Secretary, Bournemouth.*

FRUIT PROTECTORS.—I expect to learn that your readers regard the celluloid Pear-protectors shown recently to the Fruit Committee, and figured in the *Gardeners' Chronicle* last week as toys. The Committee recommended that some of them should be tried on Pears at Chiswick this year against the old method of enclosing the fruit in muslin bags. Pears suffer most from the birds in pecking small holes near the stems. Fish netting, which by enclosing the entire tree keeps off these pests, should be by far the cheapest and simplest of protectors. *A. D.*

WINTER ACONITES FLOWERING BADLY.—I have never known so few flowers as there have been this year on the Winter Aconites in proportion to the leaves, which are abundant and vigorous. I might attribute this to the dense growth of the seedlings, but Aconites do not seem to wear out the soil where growing thick, or to mind its exhaustion by tree roots. I recollect more than half a century ago how thickly they flowered under the Lime-trees at the back of St. John's College, Cambridge, and I dare say they do so still. Lack of flowers has not been general amongst early spring plants, as Crocuses, Anemone blanda, Cyclamen Coum, Leucoium vernum, never flowered better. With regard to Leucoium, I see it stated that a robust variety, which generally bears two flowers on a scape, and is called carpaticum, has yellow tips to the flowers. My experience is, that the robust forms have generally green tips; many of these bear three flowers on a scape here; and I lately gathered one, not a fasciation, but a well-formed scape, with five flowers. *C. Wolley Dod, Edge Hall.*

LYCHNIS VISCARIA SPLENDENS PLENA.—The above variety of Lychnis, though a descendant of the British species, L. Viscaria, must not be supposed to be the old red or flore-pleno of gardens, but it is, as the name implies, an improved form, producing large panicles of brilliant rose-coloured flowers. Growers who require hardy, enduring herbaceous plants, will do well to make a note of it. *William Earley.*

THALICTRUM AQUILEGIFOLIUM ATROPURPUREUM, a very showy dark-flowered form of the Austrian Meadow Rue, was again noticeable at one of the late Royal Botanic Society's exhibitions. Growers, pending the distribution of such a fine form, should meantime grow Thalictrum aquilegifolium purpureum, as being a good contrast with Thalictrum angustifolium with pale yellow flowers, and T. aquilegium (white and bluish-pink varieties). T. minus (syn. adiantifolium) requires to be well-grown to make it really effective. *William Earley.*

SOLANUM MACROCARPUM.—Solanum macrocarpum, like S. capsicastrum and others, is valuable by reason of its fruits, which are smooth-skinned and red in colour, suggestive of small Tomatos. The plant is of dwarf, compact habit, and is very valuable for the decoration of the greenhouse during winter. The fruits are persistent for some months, even after the leaves have fallen. Its propagation may be easily effected by means of seeds, which germinate readily in any light compost. When the seedlings are of sufficient size to handle, they should be potted off and grown on without a check. In June the plants should be transferred into the fruiting-pots, which may be from 7 to 8 inches in diameter. The plants require a fairly rich compost, consisting of loam, leaf-mould, and well-decomposed manure in equal parts, and a little sand. When they have become well established they may be stood out in the open, removing them again to the house directly the fruits change colour, which under ordinary circumstances will take place during September. I have seen excellent examples of this plant grown at Kew. *P. Bolt, Wentworth Gardens.*

THE SHAMROCK.—An evening journal, *apropos* of St. Patrick's Day, raises the question of the identity of the true Shamrock. "The Shamrock," says a writer in the *Church Gazette*, "was held sacred by several nations in antiquity, and endowed by them with mysterious and magical virtues. It was used as a means of detecting evil spirits. To find a four-leaved Clover is an indication of happiness. When put under the pillow, it ensures dreams of your lover. When placed surreptitiously into the pocket of your friend it will secure his constancy. A two-leaved Trefoil, plucked at the time of the Ave Maria, is a sign that you will soon be married, and live happily ever after." This shows that the Shamrock was something more than a national emblem; and so far as the testimony is valuable, makes the Trefoil to be the Irish Shamrock. Commenting on this, the evening paper (*Echo*) has an enquiry from a correspondent —"Which plant is the real Shamrock?" and it states that "the question has more than once been put to a scientific test in Ireland, by collecting numbers of specimens worn by the people, and classifying them. They are always, or almost always, a species of Clover. Most often, the small yellow-flowered Clover, the smallest species, we believe indigenous to these Islands—that is, the Shamrock of Ireland to-day. But there is little doubt that the plant originally blessed by St. Patrick was the Wood-sorrel, a much more striking and handsome plant than the obscure little Clover now used by Irish people everywhere, which will be worn so widely to-day. The Wood-sorrel also conforms to the early tradition that the 'Shamroque of Ireland was pungent, and good to eat.' The latter (Oxalis Acetosella) is indigenous to Ireland, and it has trifoliate foliages. Spencer in his view of the *State of Ireland*, tells us that the Irish, 'if they found a plot of Watercresses or Shamrocks there, they flocked as to a feast for a time;'" Shamrocks in this case being undoubtedly the Wood-sorrel. *D., March* 17.

"EARLIEST OF ALL" WALLFLOWER. — This variety, sent out by Messrs. Sutton & Sons, has proved useful at Belvoir during the past winter. The seeds of these winter flowers were sown early in June last, and the seedlings in due time transplanted, and early in October the plants were covered with flowers, and they were then removed to the flower-garden, where flowers have been produced ever since; thus, in a mild winter like that of 1898-99, lengthening the Wallflower season by about six months. All who cherish and admire these sweet-scented old-world flowers should make a point of growing "Earliest of All," under which name it was kindly sent to me for trial three years ago. Doubtless it will soon receive other names, like many other good things. The older varieties of Wallflowers, seeds of which were sown at the same time, and the plants treated similarly, are just displaying the colour of their flowers, and the same may be said of the old double yellow, plants of which are, however, always raised from slips, and have to be accommodated with a warmer position out of doors than the others. *W. H. Divers, Belvoir Castle Gardens.*

ACACIA DEALBATA.—A specimen of this plant, the "Mimosa," of the London florists and the Riviera cultivators, can now be seen in flower on a south wall at Belvoir. It was transferred from a flower-pot early in 1894, and in the following winter, when the thermometer on the grass fell to 8° below zero, = 40° of cold, the plant was killed to the ground; but next year it threw up a shoot which has grown until, at the present time, it is 12 feet in height. Another plant put out on the grass in the Duchess's garden is also showing several bunches of flowers; but this is later than the plant against the south wall. This plant had to be transplanted last year, and its growth suffered in consequence; but it now measures 14 feet in height and 8 feet in width. Doubtless the recent mild winters have favoured these plants, for the only protection they have received has consisted of a heap of coal-ashes placed over the roots during three winter months. Is there any record of this plant flowering outside before in this country? [Yes, in Mr. Ewbank's garden at Ryde, I.W. Ed.] *W. H. Divers, Belvoir Castle Gardens, Grantham.*

RICHARDIAS.—Some time since, the summer treatment of these plants was discussed in these pages, especially in regard to planting out. The champions of the two methods having had their say, the matter was dropped. Calling at Stoke Park, Slough, the other day, I noticed one of the best lot of these plants that I have ever observed, the plants of unusual strength, and profusely furnished with spathes, several of these coming from one sheath. The plants had been grown out-of-doors during the summer; and the secret of success appeared to be in re-potting being carried out before the plants had made much growth, that is, just as the first leaves begin to unfold. Mr. Kemp pots the plants in the smallest pots the roots will go into, and then he has them placed in a shady position until they are somewhat re-established, and afterwards in a light airy house. They receive liberal applications of liquid manure, with the result that an abundance of spathes are produced of unusual size and substance. *C. H.*

IVY LEAVES EATEN.—Some leaves of Ivy have been sent me from Manchester, showing marks of having been bitten by some kind of insect. The plant grows on the walls of a house, and the sender of the leaves states that he has many times diligently sought for the marauders but failed to find them. Now Ivy is looked upon as being distasteful to insects. It has been suggested that snails are the culprits, and it may be that they are. Has anyone had similar experience of Ivy leaves being so eaten, and can they name the cause? *R. D.*

THE WEATHER IN LEICESTERSHIRE.—This morning, March 21, the thermometer in the Stevenson screen registered 17° of cold, and one fully exposed 15°; while the one on the grass indicated 20°, which is very severe for this time of the year. Many of the expanded flowers of the Peach and Apricot are destroyed, although they were protected by doubled fish netting; and Peas, sown in November and nine inches in height, are much injured. *W. H. Divers, Belvoir Castle Gdns.*

—— IN CHESHIRE.—It is twenty-six months since I have registered so low a minimum temperature as occurred here on the 22nd inst., viz., 11° on a double-column thermometer, hung exposed 4 feet from the ground. On Jan. 24, 1897, it was 15°. The three nights of March 18, 19, 20, min. 19°, 21°, 17°. I need hardly say great damage is done to spring flowers. I have never before seen the flowers of Erythronium dens-canis quite destroyed by cold as they now are. *C. W. Dod, Edge Hall, Malpas.*

—— IN NORFOLK. — The calm, dry, cold weather which we have experienced throughout the month up to Saturday morning, 18th inst., gave way to strong winds coming from N. E. back to N. and N. W., with very cold weather. And snow fell frequently during Sunday and heavily at night, and on Monday at 6 P.M. there was snow to a depth of six inches; and the day remained cold, and there was less wind by 8.30 P.M. The thermometer fell to 24°, and by this morning it had fallen to 5°, thus registering 27° of frost, and at 6.30 A.M. 22° of frost —an unusual degree of cold for this part of the season. The day is fine so far, but the snow remains in shady places. *J. Batters, Gillingham, Norfolk.*

—— IN BEDFORDSHIRE.—An unusually low temperature was registered here this morning, March 22, which is likely to prove injurious to the most forward Gooseberries and Pears, though none of the latter have their blossoms expanded. We had a fall of snow yesterday to the depth of two inches, and this was followed by an exceedingly clear and still night. At the lowest part of the farm, a tested radiation thermometer on the ground recorded the minimum as minus 2·8°, or nearly 3° below zero, Fahrenheit. The elevation above sea-level is about 240 feet, and the position of the thermometer is near a watercourse. *R. L. Castle, Woburn Experimental Fruit Farm, Beds.*

EUCALYPTUS.—I think the interesting articles which have recently appeared in the *Gardeners' Chronicle* cannot have been seen by Mr. Bateman, the owner of a remarkable avenue of Eucalyptus Gunni on his estate at Brightlingsea Hall, near Colchester. I saw the trees in August, 1894, many of them being of large size and well-formed specimens. They appeared to be perfectly hardy, and had been growing outside for some years. I was told that the trees bloomed and seeded freely, and that some of the seeds were collected annually and sown in drills in the kitchen garden, and the seedlings pricked out in nursery lines, and finally planted in the woods, &c. If Mr. Bateman would kindly record his experience with this Eucalyptus, and state the size of his largest trees, I am sure many of your readers would be pleased. *G. W. Cummins, Balmedie, Aberdeen.*

NURSERY NOTES.

MESSRS. JOHN LAING & SONS.

The principal floral display at the present time in the well-known Forest Hill Nurseries, is due to the fine collection of Cliveias there cultivated. Of early spring-flowering greenhouse plants, none are more popular than the Chinese Primrose and the Cyclamen, and partly in consequence, both of these plants have been vastly developed in recent years. But the Cliveia, though its qualities are very different to those possessed by the Primula or Cyclamen, has nevertheless characteristics that make it valuable at this season. Among greenhouse plants it is essentially hardy, never requiring much heat, and seldom injured by exposure in a cold dwelling-room or to draughts. When potted in a moderately rich compost, the plants will thrive well for several years, and need not be repotted unless the pots are very full indeed of roots. Until this is the case, the plants remain perfectly healthy, and flower very satisfactorily upon occasional applications of liquid manure.

In regard to flowering, a single plant usually produces two spikes of bloom in the season, and occasionally three. The spikes carry upon an average from twelve to twenty-four blooms each, and they have been known to produce as many as thirty-six. If a single plant in an 8-inch pot will produce forty flowers per year, nothing more, it would seem, could be expected. Since the well-known C. (or Imantophyllum) miniatum was introduced to gardens, very many seedling varieties have been raised by Messrs. Laing and others, that vary in the tints and form of the flowers, and in the habit of the inflorescence. The petals are less pointed, more imbricate, and the corolla being more round, the flower has some resemblance in form to that of the Vallota purpurea. Such seedlings, with compact trusses of distinctly marked flowers, are undoubtedly very handsome and useful for decorative purposes as plants or as cut blooms.

In Messrs. Laing's collection may now be seen a number of these modern varieties, and of such the following are some of the best: W. P. Leech, bright red; Comet, Queen Victoria, Harry Laing, one of the very best; Fascination, Lord Rosebery, Fireball, Sunrise, Princess Frederick, a light-coloured one; Advance, Her Majesty, Lady Wolverton, &c. Miss Ellen Terry was not yet in good form, but the variety is a very choice one. Salamander, too, may be recommended as one of the best to date. As we have said, the varieties differ chiefly in tint of colour and in the form of the flowers, and these variations are most obvious when each can be compared with the other.

In other departments of the nursery, work is plentiful at this season. The tuberous Begonias, for instance, that bear so much evidence of the result of cross fertilisation, a work in which Mr. John Laing, senior, was the first to engage, are in various stages of growth. Seedlings have yet to be "pricked off," and thousands already so isolated are growing freely. The earliest plants are already vigorous specimens in 5-inch pots.

Writing of Begonias, reminds us of several varieties of Begonia semperflorens with double flowers. There were Boule de Neige, Triomphe de Lorraine, Nancy, &c. The varieties presented several colours, and appear to be as free blooming as the single-flowered ones.

In another house was a large group of Messrs. Laing's "multiflora" type of Streptocarpus. These plants were raised from seeds last season, and are just commencing to bloom in quantity. From white to exceeding dark purple, the flowers present a great variety of shades, and are all pretty.

The Caladiums already present a charming diversity of tints in the young and delicate foliage now being produced. That gardeners have need to be prepared for extreme variations in our much-discussed weather was instanced on the 14th inst., when our visit to Forest Hill was made. During the previous night there had been 18° of frost there. In the middle of March such severe weather is scarcely anticipated.

NEW INVENTION.

WECK'S STERILISER.

About three years ago I made the first experiments with the above method to sterilise fruit and vegetables in glasses. I chose Cherries, Plums, Mirabellas, and Pears, and the following vegetables: Green Peas, Beans, Carrots and Asparagus. The result was striking, for not only the sterilised garden produce, which was sent away in the middle of winter, was of the choicest quality and finest flavour, as if taken fresh from the garden, but also the relish was enhanced by the knowledge of having cultivated and reaped these products one's-self, and having put them into the glasses with the utmost care and cleanliness. Also there is no taste of metal in Weck's glasses, such as is always found in tinned goods. Another advantage is the cheapness of this method, when one's own garden produce is sterilised, because the amount of cost cannot be compared with the advantages gained in wholesomeness and cleanliness, especially when one bears in mind the fact that the same utensils last for years.

Consequently I introduced Weck's steriliser in a hospital here, where the nursing sisters have been busily occupied ever since in sterilising the produce of the hospital garden, in order to give it to the sick people who are under their care during the winter. Formerly the sick in this hospital were restricted to such fare as dried fruit and vegetables stored in the cellar, the hospital not being able to afford the expense of costly preserves. But now it is possible to provide the sick at any time with the choicest preserved fruit and vegetables.

Mr. Weck has made his apparatus in several sizes, and keeps the glasses, lids, and utensils belonging to it always in stock. The inventor is always willing to answer any questions, and to send recipes and prospectuses. Any of these articles can be obtained from Madame Alexandrine Veigelé, 87 and 89, Praed Street, Paddington, W. *Georg Kerner, physician, Wehr (Baden).*

CULTURAL MEMORANDA.

THE CLIVEIA.

Much has been done of recent years in improving and raising new varieties of this plant, and bringing them into notice. The cultural treatment the plant requires is of a very simple nature, and the immunity it enjoys from injurious insects, combined with its usefulness, should make it commonly cultivated. It is particularly an amateur gardener's plant, as it succeeds without much care being bestowed on it. I lately saw some plants of it, together with Vallota purpurea and Crassula coccinea, that were grown to great perfection by an amateur and his wife. Its natural season for flowering is in the spring and early summer months, but it readily responds to gentle forcing, and may thereby be obtained in flower in the winter, and its flowering season may be thus lengthened. For ordinary decorative purposes it may be grown in small pots, as then it may be pleasingly arranged in groups or amongst other plants, and small plants are well adapted for the dwelling-house. When cut-flowers only are wanted large plants should be grown, the flower-spikes being then more numerous, and the labour attendant on affording water is less. I cultivate numbers of large plants for this purpose, and find them very serviceable. The plant is easily increased from suckers or crowns, taken off when growth begins. To do this safely turn the plant out of the pot, and separate the suckers with roots attached, and pot singly in pots suitable to the size of the suckers; place in a warm, rather close greenhouse, giving careful attention in the matter of affording water, and syringing them daily after bright sunshine. The pots will be filled with roots by the autumn, at which season they should be afforded plenty of air and a drier atmosphere; during the winter place them in a cool greenhouse, and keep the soil tolerably dry. In the following spring when growth commences they will require a shift into larger pots. The Cliveia does best when its roots are pot-bound, therefore large shifts should be avoided. I once tried some planted out, near to the glass, in a warm greenhouse-border, but they did not do well, and were ultimately re-potted. Large plants may be preserved in a satisfactory state for years, without being re-potted, and they will burst their pots from this cause, and yet be in perfect health. Once they become pot-bound, manurial aids are necessary. As a potting compost, good fibrous loam mixed freely with sand and a small quantity of leaf-soil answers well, and the pots should be thoroughly drained. *Thos. Coomber.*

LAW NOTES.

ASSESSED TAXES.—TREEBY, NURSERYMAN, of OLD TRAFFORD, MANCHESTER.

We have received a copy of the correspondence which has passed between the solicitor to the Nursery and Seed Trade Association and the Board of Inland Revenue:—

"In consequence of the proceedings instituted against Mr. Treeby for omitting to take out a licence to keep a gardener, communications have passed between nurserymen in Manchester and the Nursery and Seed Trade Association, Limited. The decision in this case seems so far-reaching that it may affect nurserymen throughout the United Kingdom if a tax is payable by nurserymen in respect of their employing gardeners under the following circumstances.

"It is the practice of nurserymen to contract in writing with householders (whose gardens are not large enough to require the entire services of a gardener) to keep their gardens in order for a fixed sum per annum, and nurserymen for such purpose agree to send a gardener or gardeners for a day or several days or portions of a day in each week, according to the size of the garden and the season of the year. The gardeners so employed are engaged and paid by the nurserymen, are under their sole control, can be taken from their work, and others substituted, as the nurserymen wish.

"Skilled gardeners employed by London nurserymen are engaged, subject to receiving or giving a week's notice to leave; less skilled gardeners are engaged on the terms that they give or receive a day's notice, or a day's pay in lieu thereof. Both classes, when not engaged in keeping the gardens of householders in order, work in the nurserymen's grounds on general work.

"I submit that the statute 32 & 33 Vict. c. 14, sect. 19, applies solely to gardeners or under-gardeners engaged by private individuals for a certain period, and at a fixed salary in the same manner as a butler or under-butler, also mentioned in the statute, and not to gardeners employed by nurserymen on the terms above stated.

"A copy of a letter from the Secretary to the Chancellor of the Exchequer to Sir J. W. Maclure, Bart., M.P., has been supplied to me as solicitor for the before-mentioned association which was established in 1877 by some of the principal horticulturists to protect and promote the trade of nurserymen, florists, and seedsmen, and I have been instructed by the committee of management of such association to enquire whether your Honourable Board would, for the guidance of nurserymen, think right to inform me:—

"(1). Whether nurserymen who enter into contracts such as I have referred to, are required to take out licences for the number of gardeners they employ to carry out their contracts?

"(2). Whether, if a nurseryman contract with a householder (who does not desire to engage a gardener) to keep his garden, including hot-houses, in order by the year or for a shorter term, subject to determination by notice, and the work is sufficient to occupy the whole time of one man or more (the nurseryman being at liberty to send what man or men he likes to do the work) a licence for the gardener or gardeners so employed by the nurseryman is necessary?

"I am, yours faithfully, Charles Butcher, 30, Wood Street, Cheapside, London, Solicitor to the Nursery and Seed Trade Association, Limited."

"Inland Revenue, Somerset House, London, W.C.
March 14, 1899.

"Sir,—With reference to your letter of the 4th inst., I am directed by the Board of Inland Revenue to state, that as, so far as they are aware, the appeal in the case of Mr. James Treeby is to be proceeded with, they do not consider it convenient to discuss the liability of a nurseryman to licence duty in respect of gardeners employed by him and furnished on hire, upon any general basis.

"But if you have any specific case of a servant so employed and furnished on hire, upon which a question of liability to licence duty is raised, the Board will be ready to deal with it upon receiving the full particulars.—I am, Sir, your obedient servant, Aug. H. Browne, Assistant-Secretary."

"Charles Butcher, Esq."

Obituary.

Thomas Sibbald.—On March 17 last there passed away at Elm Bank, Bishop Auckland, at the age of seventy-two years, Mr. Thomas Sibbald, of the Escombe Nurseries in that town. The Sibbalds were of Scottish descent, and the founder of the Escombe Nurseries, Mr. Sibbald's grandfather, held distinguished office under the Bishop of the diocese, Dr. Shute Barrington, over a century ago. These nurseries have remained in the possession of the Sibbald family for more than three generations. The deceased, for more than forty years, had carried on an extensive business as nurseryman, seedsman, and florist; he was, moreover, a useful and prominent citizen, and had greatly helped in inaugurating or carrying out numerous works of public utility in Bishop Auckland. The business will be carried on by his son, Mr. T. Sibbald.

William Murray, of Parkhall Gardens. — We regret to record the death of Mr. William Murray, the gardener at Parkhall, which took place on Saturday, March 11. The deceased was sixty years of age, and for a period of thirty-three years he had been gardener to Mr. Livingstone, Learmonth. Few men in Scotland have attained so great an amount of success as a Grape and Tomato grower as the deceased for twenty years past. His exhibits of fruit, and of Grapes especially, have always been in the winning positions at the Edinburgh and Glasgow shows. His fame as a cultivator was widely known, and many visitors went to Parkhall to see the enormous crops of remarkably handsome bunches of Grapes. Last year the amount of the crop and the quality were equal to any previous season. The Vines, too, by fine firm wood and immense glossy foliage, testified to the skill of a master-hand.

Mr. Murray's talents and his zeal for the welfare of his fellows was widely known, and greatly appreciated throughout the district. Among local institutions, Mr. Murray was an able member of School Board at Muiravon Side (where his remains were interred on Wednesday, March 15). He leaves a widow and one son. The latter now represents the firm of Wm. Murray & Son, which was formed two years ago by renting a large portion of the extensive ranges of glass at Parkhall, and a number of acres of land for market purposes. *M. Temple, Carron, N.B.*

William E. H. Baker. — We regret to learn of the death on Monday morning last, after a protracted illness, of Mr. W. E. H. Baker, eldest son of Mr. W. E. Baker, proprietor of the Thames Bank Iron Co. Mr. Baker was a young man of great promise, and until stricken down some three years ago took an active part in the Upper Ground Street business, and was much respected by the trade.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

March 14.—*Present:* Dr. M. T. Masters (in the chair); Dr. Müller, Mr. E. F. in Thurm, and Rev. G. Henslow, Hon. Sec.

Dahlias Diseased.—Some roots were received from a nursery firm, with the following communication:—"First, we started our roots in the manner we have done for years with the best results—namely, on a hot bench, taking cuttings within three weeks of their insertion, and gradually lessening the heat as time went on. Secondly, the first batch this season was somewhat soft, and all failed; not, however, by damping off, but from the effects of the disease. Thirdly, last season we had magnificent strikes, but near the close of the season, the "spot"—as on the specimen sent—made its appearance, but was very limited. Fourthly, the bottom heat was maintained at about 70°, while the top was about 15° less. Fifthly, can the Tomato-disease have become incorporated with the soil, as Tomatos had been grown there; and has this any relation to the disease or cause of the trouble? Sixthly, all the roots were placed in comparatively new soil, although some of the old may have been mixed with it. Seventhly, the house is well aired, and the cuttings were firm when taken off. As to remedies, we have applied sulphur with satisfactory results; so far as it killed the fungus at the root and allowed fresh clean growth to be made, but it had no apparent effect on the cuttings. They went off by the score. We have hitherto been most successful in Dahlia cultivation, and have had misfortunes, too, but this disease completely baffles us. The result is the same, both with hard-grown forced exhibition roots, and those grown without forcing."

The following valuable report on the preceding was received from Dr. W. G. Smith, Yorkshire College, Leeds, to whom a vote of thanks was unanimously accorded:

"The Dahlia cuttings when received showed various stages of blackened discoloration, where they had been in contact with the soil, and also on the older leaves, especially where they joined the stem. Where the blackening was worst the tissues were filled with bacteria, and fungus filaments were present. After a few days in a moist chamber the cuttings became black and rotten; the bacteria were more abundant, and the fungus bore colourless spores of two kinds. Your correspondent suggests infection from Tomato-disease, previously present in the same house. We find that the two forms of fungus conidia (and only two are present) occurring on this Dahlia material are almost (but not exactly) identical in form with those figured by Mr. Massee (*Gardeners' Chronicle*, June 8, 1805) in connection with the Tomato 'sleepy disease.' Whether this is a coincidence or a connection, it is as yet too early to say. There is, however, little doubt that this Dahlia disease affects the cuttings in the same way as the above Tomato-disease. It has its origin in the soil.

"Remedies.—Your correspondent has tried sulphur in the soil with some good effect. No fungicide, however, will be so beneficial as—

"1. Fresh clean soil.

"2. Ventilation, as far as it can be given.

"3. To water the freshly-struck cuttings as little as possible till they form roots.

"4. To use boxes or pans which have been thoroughly disinfected, and to have houses and benches washed down with a limewash.

"In addition to these Mr. Massee recommends for the Tomato-disease, to mix as much lime in the soil as the plant will stand. How far these measures can be carried out must lie with the discretion of the grower." Dr. Müller suggested sterilising it by baking the soil.

Hybrid Narcissi.—Some specimens were received from Rev. C. Wolley Dod, with the following remarks:—"I send a spontaneous hybrid which has come in one of my flower beds. It is presumably N. pseudo-Narcissus var. minimus × N. cyclamineus. I also enclose specimens of the parents. I consider N. cyclamineus one of the best marked species of the genus. It is the only one which has the perianth almost sessile on the fruit. Mr. G. Maw once suggested to me that it might be produced by N. minimus × N. triandrus, but he overlooked this character—the tube of N. triandrus being very long. In the hybrid sent the tube is intermediate between that of the parents. The trunk of the perianth follows neither parent, being cylindrical, whilst that of N. p. minimus tends to be funnel-shaped, and that of N. cyclamineus is always ventricose and contracted towards the mouth. N. cyclamineus is a profuse pollen-bearer and seed-bearer, but the bulb, with me at least, is short lived, and requires constant renewal from seed. I have also observed in another bed a hybrid, N. cyclamineus × N. pseudo-Narcissus, of some larger variety. The developed tube and glaucous broad leaf belong with certainty to pseudo-Narcissus, though the perianth is completely reflexed, as in cyclamineus."

WARGRAVE AND DISTRICT MUTUAL IMPROVEMENT.

March 15.—An ordinary meeting of the above Society was held on the above date, Mr. W. Pope presiding. After the usual routine business—

Mr. T. Haskett, gr. to J. W. Rhodes, Esq, Hennerton, read a very practical paper on "Budding and Grafting," illustrating his remarks by prepared slips, buds, and grafts, and showing the manner in which the latter should be inserted. Directions were given for ensuring success in the three methods most largely practised:—Tongue-grafting, cleft-grafting, and saddle-grafting.

Mr. Coleby (Hon. Sec.) also read an instructive paper on "The Wars of the Plants, showing that plants carry on a kind of warfare, in which the strongest come out victorious. It was pointed out that the "survival of the fittest" is no meaningless term in the vegetable world. A long discussion took place on the papers, and Votes of Thanks were accorded to the readers. Messrs. Pope, Robbins, Greenaway, and Fullbrook exhibited Begonias, Cinerarias, Narcissi, and Azaleas respectively.

DEVON AND EXETER GARDENERS'.

March 15.—The subject discussed at the last meeting of the Society was "Chrysanthemums and their Culture, with Hints on Dressing, Staging, and Judging Cut Blooms," the essayist being Mr. G. Stiles, gr. to Miss Fripp, The Grove, Teignmouth.

The best time to strike cuttings for exhibition purposes, said the essayist, was in December; and in the case of sorts which are later in producing suckers, not later than February. Cuttings will strike readily in boxes of about 2 inches deep, containing light soil, and placed in a frame with a gentle bottom-heat of say 55° to 60°, keeping them as near the glass as possible, and sprinkling overhead with tepid water. In sunny weather they need the protection of a light shading. When the cuttings have become well rooted, and are potted off into small pots, give them a little heat to excite root-action, but afterwards the less coddling given them, the better.

Mr. Stiles subsequently described the necessary details in the cultivation of the plants during the spring and summer. If intended for exhibition, said the lecturer, the flower-buds must be selected between the end of July and the middle of September. When this has been done, all shoots produced subsequently should be removed at once. From the end of July until the blooms are cut, a little liquid-manure with every alternate watering will be beneficial. A good liquid-manure may be obtained by immersing a bag of fowls' dung and soot in a barrel of water. From the first week in September a bi-weekly dose of sulphate of ammonia is beneficial —about 4 oz. to 5 gallons of water.

Begin to dress the blooms when they are only half open, removing any malformed, crooked, or superfluous florets or hard centres, and Nature will then repair the loss by developing the symmetry of the flower. This applies to the Japanese varieties. Treat the incurved similarly, but see that the blooms are made to droop, or to hang to the side, for this helps them to fill up, and develop a close, full centre. The removal of defective petals should be gradual.

After giving directions for staging cut blooms, Mr. Stiles concluded by giving a selection of twenty-four Japanese and twelve incurved varieties, specially valuable for exhibition.

BRIGHTON AND SUSSEX HORTICULTURAL AND MUTUAL IMPROVEMENT ASSOCIATION.

March 16.—The monthly meeting of this Association was held at the School of Science and Technology on the above date, Mr. W. Balchin, Jun., in the chair, Mr. G. Miles, vice.

Mr. T. W. Sanders gave an interesting lecture upon the "Scientific and Practical Aspect of Plant Propagation," which he illustrated by diagrams. The different methods of propagation were dealt with in a practical manner, viz., by seeds, cuttings, leaves, grafting, budding, and inarching. The lecturer also fully explained the process of seed-germination, the length of time it took for various seeds to germinate, and the conditions that were most favourable to germination.

The lecture was much appreciated by a large audience, consisting of members and friends. A unanimous vote of thanks was given to Mr. Sanders for his lecture, and a short discussion followed.

CHESTER PAXTON.

March 18.—At this meeting, Mr. John Jackson was to have read a paper on "Vine Culture," but was prevented from doing so on account of illness. In his absence, Mr. John Taylor (Hoole Hall), and the Hon. Secretary of the Society, undertook to give short addresses on the Potato, both of which gave rise to a considerable amount of discussion.

The principal points dealt with were the cutting and sprouting of tubers before planting, the best manures to use, and the classes of soils best suited for successful culture; spraying with Bordeaux Mixture, as a means of preventing the spread of fungoid diseases; and the best varieties to use for successional crops.

Mention was made of the interesting series of Potato trials made at the Cheshire Agricultural School, under the direction of Mr. Gordon, Principal of that Institution, as an excellent means of ascertaining the best varieties to suit local districts A collection of some thirty-six varieties was staged, and those which found most favour with the audience were Up-to-Date, The Dickson, Sutton's Reliance, Mr. Breesee, Cheshire Prince, General Roberts, Snowdrop, and Clarke's Maincrop, which was admitted by all to be the best-flavoured late variety yet introduced, although not so heavy a cropping variety as some of the others.

Before the members dispersed, the President (Mr. John Wynne) proposed a Vote of Thanks to Mr. Taylor and Mr. Miln, which was seconded by Mr. Barnes (Eaton Gardens) who recommended Early Ringleader as the best and most profitable variety for pot-work and for early borders.

CORNWALL DAFFODIL AND SPRING FLOWER SHOW.

March 21.—The third show of this Society was opened in the Concert Hall, Truro, on Tuesday, March 21, under the very unusual conditions for Cornwall of most inclement weather, snow covering the ground. The occasion was made memorable by the visit of a deputation from the Royal Horticultural Society, consisting of the Rev. W. Wilks, Secretary, Mr. C. E. Shea, Rev. G. H. Engleheart, and Mr. G. Bunyard.

The show in every way maintained its reputation. Indeed the demands for space overtaxed the room at disposal. The large collection of Narcissi sent from Scilly by Mr. T. A. Dorrien-Smith, Mr. D. H. Shilson's magnificent Rhododendrons, and the several noble collections of flowering shrubs were the salient features of the exhibition, but the many collections of Narcissi, Violets, and other spring flowers staged by amateurs, were of high excellence. The deputation made the following special awards on behalf of the Royal Horticultural Society.

A Gold Medal to T. Algernon Dorrien-Smith, Esq., Tresco Abbey, Scilly, for a collection of more than 100 varieties of Daffodils "representative of the invaluable work done by him for the floral industry of Cornwall."

A Gold Medal to D. H. Shilson, Esq., for Rhododendrons, very many being of his own raising.

A Silver-gilt Flora Medal to Messrs. R. Veitch, of Exeter, for a collection of rare shrubs.

Silver Flora Medals to Messrs. Howard Fox for flowering shrubs; and John Nicholl for Bamboos, &c.

A Silver Banksian Medal to Robt. Fox, Esq., for flowering shrubs.

The following exhibitors were highly commended:—D. H. Shilson, Esq., for hardy spring-flowers; M. H. Williams, Esq., for flowering shrubs; J. C. Daubuz, Esq., ditto; Capt. Pinwell, for extraordinary specimens of Narcissus maximus; Andrew Lawry, Varfell, Mount's Bay, for Market Narcissi.

In declaring the show open, J. C. Williams, Esq., the President, welcomed the deputation and expressed the thanks of the local Society for their presence. He pointed out that they had come so far, out of no mere passing compliment, but hoping to recognise and encourage what was in truth a serious enterprise, namely the advancement of a worthy and profitable industry in Cornwall.

The Rev. G. H. Engleheart in his reply on behalf of the deputation, called attention to the manner in which the farming of flowers, fruit, and vegetables, was fast occupying the ground vacated by agriculture, and urged the importance of all localities specially favoured by soil and climate, making a full use of their advantages. Flower shows were no longer mere assemblies for amusement, but opportunities for amateurs and professionals to meet on common ground, and exhibit and ascertain all that is of the best. The past history of the Royal Horticultural Society itself was both a warning and an encouragement to local societies—there was a time when, perhaps, it overlooked its practical and proper work for what was mere fashion and amusement, but from the time that it had become a truly working horticultural society its success had been assured. Let this Cornish Society bear in mind that its shows were no mere pastime, but a sign of and an incentive to an actual work—the furthering of this great industry of the county, and it would go on from things already good to things even worthier.

The judges other than those representing the Royal Horticultural Society were Miss Willmott, F. W. Burbidge, M.A. and Mr. Ilott.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 9.—At a meeting held at the Coal Exchange, Manchester, on the above date, there were present Messrs. G. Shorland Ball (chairman), W. Thompson, T. Statter, A. Warburton, H. Greenwood, J. Leemann, G. W. Law-Schofield, P. Weathers, J. Cypher, R. Johnson, W. Stevens, J. Robson, and T. Mills, hon. sec.

W. THOMPSON, Esq., The Grange, Stone (gr., Mr. Stevens), showed Dendrobium Thompsonianum (nobile Cypheri × cheltenhamensis) (Award of Merit); and a group of Odontoglossums (Silver Medal).

THOMAS STATTER, Esq., Stand Hall, Whitefield (gr., Mr. Johnson), showed Cœlogyne cristata alba (First-class Certificate), Dendrobium splendidissimum grandiflorum (Cultural Certificate), D. s. giganteum (Award of Merit), D. nobile nobilius (Cultural Certificate); also a group of miscellaneous species and varieties (Silver Medal).

S. GRATRIX, Esq., Whalley Range (gr., Mr. McLeod), showed Dendrobium rubens grandiflorum (Award of Merit); D. Luna (Award of Merit), D. Wardianum album (Award of Merit), and Cypripedium Lebaudyanum (Award of Merit).

JOHN LEEMANN, Esq., Heaton Mersey (gr., Mr. Edge), showed Denbrobium Wardianum album (First-class Certificate), D. Ballianum, D. Sanderæ (Award of Merit), D. nobile albiflorum (Award of Merit), D. splendidissimum grandiflorum Thompson's var. (First-class Certificate), Cattleya speciosissima Princess of Wales (First-class Certificate), C. Octave Doin (Mendeli × aurea) (First-class Certificate), Lælio-Cattleya callistoglossa (First-class Certificate); also a very fine miscellaneous group (Silver-gilt Medal).

G. W. LAW-SCHOFIELD, Esq., New-Hall-Hey, Rawtenstall (gr., Mr. Shill), showed Dendrobium nobile giganteum (Award of Merit), D. n. Fisheri (Award of Merit), D. Doris (Leechianum × moniliforme) (First-class Certificate), D. euosmum virginalis (endocharis × nobile) (Award of Merit), D. dulce (aureum × Linawianum) (Award of Merit), Lycaste Skinneri alba (First-class Certificate), and Odontoglossum crispum virginale (First-class Certificate).

A. WARBURTON, Esq., Haslingden (gr., Mr. Lofthouse), showed a yellow variety of Cypripedium insigne (First-class Certificate); also a fine group of cut blooms (Vote of Thanks).

E. J. SIDEBOTHAM, Esq., Bowdon (gr., Mr. Shiner), showed Dendrobium Luna (Award of Merit).

HY. GREENWOOD, Esq., Haslingden (gr., Mr. Gill), showed Dendrobium Juno (First-class Certificate), D. Owenianum (First-class Certificate), D. Aspasia (Award of Merit), and Cypripedium Mastersianum (Award of Merit).

D. B. RAPPART, Esq., Liscard (gr., Mr. Nicholson), showed Odontoglossum crispum (Award of Merit).

Mrs. BRIGGS-BURY, Accrington (gr., Mr. Wilkinson), exhibited Dendrobium × Hebe (First-class Certificate), Odontoglossum Ruckerianum (Award of Merit).

O. O. WRIGLEY, Esq., Bury (gr., Mr. Rogers), had Cypripedium insigne, Harefield Hall var. (First-class Certificate), Cypripedium seedling (Curtisii × barbatum) (Award of Merit).

R. ASHWORTH, Esq., Newchurch (gr., Mr. Pidsley), showed Lycaste Skinneri alba, bearing thirty-three expanded blooms (First-class and Cultural Certificates).

E. STANLEY CLARKE, Esq., Wrexham (gr., Mr. Edwards), showed Odontoglossum crispum Mrs. Stanley Clarke (Award of Merit), and a group of plants in flower (Vote of Thanks).

HY. WEETMAN, Esq., Glossop (gr., Mr. Faulkner), had Dendrobium nobile Amesiæ (First-class Certificate).

EDWARD HOLT, Esq., Prestwich (gr., Mr. Murphy), staged a group of miscellaneous Orchids (Vote of Thanks).

Messrs. J. VEITCH & SONS, Ltd., Chelsea, exhibited Dendrobium Ainsworthi intertextum (First-class Certificate), D. A. i. amœnum, D. euosmum leucopterum (Award of Merit), D. e. delicatum (Award of Merit), &c.

Messrs. F. SANDER & Co., St. Albans, showed two forms of Cattleya Trianæi, one of which received an Award of Merit, and other plants.

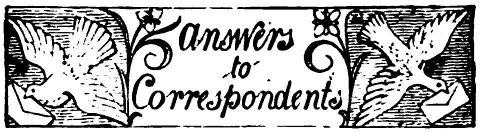
Mr. A. J. KEELING, Bingley, showed Odontoglossum Wilckeanum superbum (Award of Merit and Cultural Certificate), O. Andersonianum virginale, and Dendrobium splendidissimum grandiflorum, Thompson's var. (First-class Certificate).

Mr. JOHN COWAN, Gateacre, showed Cattleya Trianæi Archleana.

Mr. JOHN ROBSON, Altrincham, showed Cymbidium Lowi-eburneum (Award of Merit), Dendrobium xanthocentrum (Award of Merit), and a group of other plants (Vote of Thanks).

Mr. J. CYPHER, Cheltenham, staged a group of miscellaneous Orchids (Vote of Thanks).

THE ROYAL GARDENERS' ORPHAN FUND.—The smoking concert in aid of this Fund, held on the 15th inst. at Cannon Street Hotel, was very well attended, but the proportion of gardeners to those present was exceedingly small.



Answers to Correspondents

BOOKS: *A. D. B., Jena.* *The Encyclopædia and Dictionary of Gardening*, by Geo. Nicholson and others, in the English language, first edition, by Mr. Upcott Gill, 170, Strand, W.C.; or the newer French edition of the same work (*Dictionnaire Pratique d'Horticulture et de Jardinage*), par G. Nicholson and S. Mottet; Vilmorin-Andrieux et Cie., published by the Librarie Agricole de la Maison Rustique, 26, Rue Jacob, Paris.—*Jason.* Horticultural Buildings, by F. A. Fawkes; published by Swan, Sonnenschein, La Bas and Lowrey, Paternoster Row, E.C. New edition, *Heating by Hot Water*, by Walter Jones; published by Crosby Lockwood and Son, 7, Stationers' Hall Court, E.C. 2nd edition.—*B. R.* The most recent work on landscape gardening is the one under that title, by Mr. Samuel Parsons, published by G. P. Putnam's Sons, 27, King William Street, Strand, W.C.

CABBAGES, BROCCOLI SPOILED: *J. S.* The plants are affected by a slime fungus, the cause of clubbing and other ills in Brassicas. Try heavy liming the soil and fallowing as far as may be practicable, and varying the cropping, that is, not planting any Brassicas on the same piece of land two years running. The land should be trenched, not necessarily bringing the bad subsoil to the top, but breaking it up and leaving it at the bottom. Some of it may be brought up at the next trenching, say, in three or four years. As the soil appears to be full of manure or vegetable remains, the lime will benefit it, and some may be applied at every winter digging for some years to come.

CORRECTION.—The Snowdrop figured in our last issue under the name Cassalia should be called "Cassaba."

CUCUMBERS: *E. S.* The roots are badly affected with the eel-worm, so often described in these columns. There is no cure, but you should burn the plants, get fresh soil, and bake it before using to kill the worms in the soil, and start afresh.—*J. L.* Probably eel-worms. Can you send a few roots for our inspection?

DONATION: *G. King.* We make no charge for such insertions, and we have forwarded the Postal-order to the Secretary of the Royal Gardeners' Orphan Fund.

EXPANSION-JOINT IN HOT WATER PIPES: *G. A. K., Mount Tolmie, Victoria, B.C.* This kind of protection against fracture by internal pressure is not in use here, the feed cistern answering the purpose. With steam heating and cast-iron pipes it is necessary, and it usually consists of a sliding length of pipe accurately turned and smooth, inserted between the disconnected ends of the main steam flow.

FIGS: *W. J. G.* The fruits of the Fig fall off when young from a variety of causes—from lack or from excess of water, from cold, or check of any kind; from being too forward at the period of rest, &c. A "well drained" border is liable to become very dry when least suspected, and in the absence of any details of cultivation in your note, we are unable to indicate the cause of the fruit dropping. It is not good practice to stop the shoots "several times"—at the least, not the same shoots, in the summer.

GENISTAS: *Swiss.* The usual time to strike cuttings of the greenhouse species is the end of June or the beginning of July. They should be slips taken off with a thin heel and put into 32's or 48's, filled with sandy peat made firm, and surfaced with ½-inch layer of silver sand. The pots must be well drained, with quite small crocks two inches deep. The cuttings must be covered with a bell glass, which must be wiped daily. A greenhouse temperature, and shading from bright sunshine, must be afforded. Stocks for forming standards may consist of the slender growing C. filipes.

GRENADILLA SEEDS: *A. W. P.* The seeds should be sown in finely-sifted loamy soil, with one-sixth leaf-mould and some silver sand incorporated, covering them to the depth of a quarter of an inch with the soil. The seed-pots should be well drained by placing a two-inch layer of finely-broken crocks at the bottom over one large convex piece placed over the hole in the pot. When afforded water, stand them in a mild hotbed or intermediate-house, and when the seedlings have made a true leaf or two prick them off into other pots in warmed soil, and finally pot them up and grow in a warm part of a greenhouse. A roughish soil, consisting of loam, leaf-mould, or fibry peat and decayed manure one-fourth, will suit the plants when they are a year old, affording them good drainage and a warm situation.

LAPAGERIA: *Swiss.* The layering may be performed in the spring by pegging down the shoots on a bed of peaty soil, and covering them at the nodes where the pegs are situated about one inch deep.

NAMES OF FRUITS: *George Farmer.* 1, Striped Beefing; 2, not known; 3, Lane's Prince Albert. Samples sent much rubbed and discoloured; they do not fairly represent the proper character at this season.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—Armitage, Bros.* Chorizema cordatum.—*E. S. R.* Probably Pinus Tæda. Can you not send us a cone?—*P. P.* 1, Ophiopogon Jaburan variegatum; 2, Cestrum (Habrothamnus) species; 3, Bilbergia nutans; Nos. 4 and 5 have not come to hand. The Shamrock should be planted out of doors; and the Swainsonia have the dead wood removed and the new growth stopped once.—*F. C.* 1, Coronilla glauca; 2, Streptosolen Jamesoni; 3, Pilea muscosa.

NUT BUSHES SEVERELY CUT BACK: *E. S.* The clustering shoots, the result of the operation, must be removed in great part, leaving only the best placed, only two or three as may seem desirable to form a new head. Nature would do this thinning out by the smothering out of existence of the weaker shoots, but it would be a lengthy process. The shoots that are left should not be topped this but next year, and during the summer young shoots not wanted must be rubbed off.

RICHARDIA AFRICANA: *Jason.* The production of early spathes is favoured by pot culture alone, but for late winter and spring-uses out of doors cultivation in rich, cool, moist soil with early potting may be recommended. Where early spathes are looked for, the plants should be turned on their sides when the leaves begin to yellow, and no water be afforded for two months, unless the pots be less than 10-inch. See a remark by a correspondent in our Home Correspondence in the present issue.

ROLLER BLINDS FOR STOVE: *R. C. D.* Undoubtedly the best are made from thin Bamboo splints, secured by copper wire. They should be made 5 feet wide, and as long as may be necessary. Sold by some of the horticultural sundriesmen.

WILD RED CURRANT: *G. A. R., Mount Tolmie, B. C.* We should question an Alaskan wild species being as good as our garden varieties.

COMMUNICATIONS RECEIVED.—G. W. A.—T. B. Browne, Ltd.—J. Batters, too late.—J. P., Sydney.—C. W.—D. M. McKinnon.—D. T. F.—S. A.—A. Wallace.—A. C. F.—C. W. D., several.—A. Ransom.—F. W. B.—G. E.—H. C.—E. M. H.—O. T.—C. B.—T. E. H.—A. J. M.—J. H. W. (next week).

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—O. J.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS *at home, that it has a specially large* FOREIGN AND COLONIAL CIRCULATION *and that it is preserved for reference in all the principal Libraries.*

(*For Markets and Weather, see p.* xv.)

THE
Gardeners' Chronicle
No. 640.—SATURDAY, APRIL 1, 1899.

THE TEMPERATE-HOUSE AT KEW.

WE record with pleasure the completion of this magnificent plant-edifice, which will be thrown open in its entirety to visitors to Kew on Easter Sunday. It is exactly forty years since Mr. Decimus Burton supplied the designs which, with slight modifications, have been followed in the construction of, first, the octagons in 1861, the grand centre in 1862, the south wing in 1897, and, finally, the north wing in 1898.

The need of such a conservatory was urged by Sir William Hooker so early as in 1856, "for the accommodation of those noble Chilian, Mexican, and Australian Conifers, and other trees and shrubs of temperate climates, for the possession of which Kew has long been celebrated, but of which I must now speak almost in the past tense. . . . What is really required to render the Gardens complete, is as much accommodation for the large trees and shrubs of temperate climates as was granted for tropical plants twelve years ago, in the erection of our noble Palm-house, which is the pride and glory of our gardens, and then, and not till then, we shall have attained to all that this great national establishment ought to be." Sir William Hooker only saw part of his grand scheme carried into effect. His successor, Sir Joseph Hooker, appears to have relinquished all hope of ever obtaining funds for the erection of the wings, as he found "so many other and more urgently needed works to be carried out, especially in the Arboretum."

About five years ago, the Right Hon. Joseph Chamberlain, a frequent visitor to Kew, interested himself in the present Director's desire to see this building completed, and it was in great measure due to his exertions that a grant was obtained for the erection of the southern wing, and afterwards of the northern.

The house is now by far the largest plant-structure in the world, its length being 582 feet, its greatest width 138 feet, height of the grand centre 60 feet, of the wings 38 feet, and its ground area nearly 2 acres. The cost of the whole edifice has been about £60,000.

The value of such a house in a botanical establishment such as Kew cannot easily be over-estimated. It affords ample space for the proper development of the many interesting shrubs and trees of temperate and subtropical regions, which, in the plant-house of ordinary dimensions are cribbed, cabined, and confined in pot or tub, and are necessarily decapitated or mutilated to keep them within bounds. Such examples have little or no interest either for the botanical student or the horticulturist. "A botanic garden is not valuable as was once thought in proportion mainly to the number of species of plants which it contains, but to their characteristics, botanical or otherwise, their usefulness and beauty. Selection, rather than a collection, has become a necessity. Many plants that were formerly considered worthy of cultivation, simply because of their rarity, are now properly confined in the state of dried specimens to the herbarium." It is only when collections are formed and kept up on these lines that botanical gardens are made really attractive and useful, and when once we grasp the principle that a dozen well-grown, properly-developed plants are in every way preferable to fifty half-starved, miserable-looking examples, we shall have made an important step in the direction of improvement in glasshouse-gardening.

Large plant-houses are, however, likely to be a curse rather than a blessing if not constructed with a view to affording those conditions required by the plants it is intended to grow in them. It would be futile to attempt, for instance, the cultivation of a collection of Orchids or Ericas in this large house at Kew; and we are pleased to notice, by the way, that the reduction in the height of the Orchid-houses in the same establishment has already resulted in considerable improvement in the health of the collection. There can be no doubt as to the suitableness of the conditions afforded in these new wings of the Temperate-house for the plants grown in them, the growth made by almost every plant in the south-wing, known as the Mexican-house, being all that could be desired. A full account of the arrangements in and contents of this house was published in our pages in October, 1897, p. 234.

The north wing is to be known as the Himalayan-house, the majority of the plants to be grown there being natives of that region, or of China and Japan. The arrangement of the beds is exactly the same as in the Mexican-house, with the addition of two rock-pools near the north entrance, and two rooteries at the other end. No artificial heat is to be used, even in winter, the object being to show what plants can be grown in a large glass structure without fire-heat. The plants already planted there are:—Rhododendrons from the Himalaya and Yunnan, Camellias, Himalayan Bamboos, Tea, Magnolias and Talaumas, Indian and Chinese Roses, Buddleias, Vacciniums, Tree Pæonies, Arisæmas, Liliums, Kakis, Fatsias, Eriobotrya, Gordonias, Kumquat, Photinias, Nandina, Akebias, Eukianthus, Ligustrum coriaceum, Incarvilleas, Euonymus, Viburnums, Pueraria Thunbergi, Corylopsis, Osmanthus, Aralias, Himalayan Rubi, &c. Indian Nymphæas and other aquatics will be grown in the rock-pools, and some of the coarser herbaceous plants, such as Primulas and Saxifragas, will find a place either beneath the shrubs or in the chinks of the rocks. Eremurus will also be tried there. A few western plants have been admitted, only because the conditions of the house are peculiarly adapted to them; these are Carpenteria, Embothrium, Philesia, Fremontia, and a few others. Tall plants of Bambusa mitis will form an avenue along the central path, corresponding to the avenue of Cocos plumosa in the Mexican-house. So far the plants generally have taken kindly to their new quarters, notwithstanding the great size of many of them.

The general plan of the whole edifice is now as follows:—Plants requiring an intermediate temperature in the Mexican-house, temperate Eastern plants in the Himalayan-house, Oranges in the south octagon, Bays, &c., in the north octagon, and trees and shrubs of Australia, New Zealand, South Africa, and southern Europe in the grand centre.

The whole of the plants are planted out in long parallel beds, level with the paths, save only those which stand on a narrow bench extending all round the central part, and serving as a screen for the hot-water pipes. It is this natural arrangement which makes this house so much more pleasing than the Palm-house, for instance, where many of the plants are grown in pots or tubs necessarily huddled together, and standing on iron gratings over hot-water pipes, which, both in appearance and in effect on the health of the plants, are not unlike a huge gridiron.

We have almost reformed away from the outdoor garden that muddled arrangement once known as a shrubbery, and have substituted a looser, meaningful style, which gives each plant plenty of room to show itself to advantage. There is no reason why the same reform should not be extended to the glass-house garden, and we are glad to see such a reform has been carried into effect at Kew.

Whilst admiring, as all must do, the superior charm and beauty of plants grown under more natural conditions, it is nevertheless still essential in a botanic garden, especially at Kew, to have representative collections. Thus, at Kew, in addition to the monster palaces of glass, where after all only a limited number of species can be grown, we have, very properly, special houses for Orchids, Nepenthes, Ferns, Succulents, and the like, so that the student has the opportunity of seeing as complete collections of certain groups as circumstances will allow.

A spacious alpine-house and the formation of a rockery, under a removable glass roof, is a desirable feature, which we may hope to see at Kew in the future.

Again, following the analogy of the exhibitions of the pictures of Rembrandt and other masters, we should like to see at different times special collections of particular groups; such collections to be made as complete or as representative as possible, and to be retained unbroken for a few years, in order to give students the fullest possible opportunity of seeing the plants in growth. At the end of the time, the collections might be dispersed, retaining only the best for educational and ornamental purposes, and consigning the rest to the herbarium or to the rubbish-heap, as might be found desirable. In the herbaceous ground a similar plan might be adopted.

ORCHID NOTES AND GLEANINGS.

CATTLEYA TRIANÆI GIGANTEA, HAREFIELD HALL VAR.

THIS noble form of Cattleya labiata Trianæi has again flowered in the collection of Elijah Ashworth, Esq., at Harefield Hall, Wilmslow. The plant, which has unusually tall and stout growths, was collected in the Popayan district by Consul F. C. Lehmann in 1896, with the recommendation that out of the thousands of Cattleyas which he had seen in bloom in their native homes, this was by far the best in every respect. When it flowered at Harefield Hall, all the orchidists who saw it agreed that the recommendation was a just one when applied in comparison with home-grown specimens; and now, with the evidence of the flower sent by Mr. Ashworth, I can do no less than add my testimony. In the form of the individual parts, in their charming arrangement, in the fine thick substance of the flower, and its exquisite colouring, it leaves nothing to be desired. The broad flat sepals are silver-white, delicately flushed with a slight tinge of rose. The petals are each 4 inches long by 3¼ wide, silver-white, with a delicate tinge of rose, the colour being slightly more pronounced on the veining and the tips than on the other portion. The margins of the petals and the lip are very finely crimped and slightly fringed. The lip, whose circular front is 3½ inches across, is white at the base of the tube, up the centre running a band of orange-coloured markings, the band diverging to each side as it approaches the mouth of the tube. The middle area is bright rose-crimson, changing to pure dark rose as it reaches the margin. The outsides of the side lobes are rose-pink. Compared with this, most of the other named varieties would appear to a disadvantage. *James O'Brien.*

FORESTRY.

THE HOME NURSERY.

(*Continued from p.* 164.)

We may take it for granted that the class of trees or plants which the forester is most desirous of raising in the nursery are those which will bear transplanting with safety. The aim of the nurseryman is in a similar direction, no doubt, but pecuniary considerations compel him to study the rate of growth, as well as the transplanting capabilities of the plants he raises; and therein lies the chief difference between the management of home and commercial nurseries. In these latter, manure, and plenty of it, is usually relied upon to stimulate a strong and vigorous growth; and the usual paragraph in catalogues, that "our" nurseries are situated so many feet above sea-level, or freely exposed to this or that wind, may be taken for what it is worth. No doubt altitude and exposure do affect the growth of a plant, but how much or in what way it affects its transplanting capabilities, or its success in its future home, are not easy questions to settle. If we accept the Darwinian theory of adaptation to environment, the nearer a tree and its ancestors have lived to the spot which it is intended to permanently occupy the better. The chances are that the vicissitudes of local climate will be more easily borne by such a tree than by one which has to discover the local spring and summer for itself, or is compelled to work on data gathered in another place. Experiments carried out with seeds and seedlings tend to indicate that seeds or plants transplanted to a warmer climate than the one in which they have been grown or raised, start more quickly into growth than those indigenous to the locality. This may or may not be an advantage, according to circumstances, and within certain limits, may have no practical significance. In my opinion, by far the most important quality in a tree or seed intended for transplanting or sowing is a thoroughly ripened condition, and so far as seeds are concerned, nothing further need be said. With regard to trees, it is only necessary to consider what takes place when a tree is transplanted under ordinary conditions in order to realise the importance of its wood being thoroughly ripe, and well matured. In ordinary practice, and in ordinary language, transplantation means interrupted growth of either roots or stem. When transplanted in winter, as is usually the case, the growth of the roots only is directly interfered with, and this is effected by exposure, killing in the process of lifting, breaking off the growing points of the roots with their food-absorbing root-hairs. A plant cannot be said to be successfully transplanted, therefore, until this injury is repaired by the formation of new roots, and for this purpose the stock of reserve material stored up in the tissues of root and stem must be drawn upon. Plants lifted with the majority of their roots intact, and replanted before they are exposed to dry air or wind, probably suffer no more demand upon this reserve store than would be the case if the plant had never been moved, for root-growth goes on more or less throughout the winter at the expense of this store. But in the case of ordinary transplanting, such as takes place when plants are obtained from a nursery, and subjected to the usual processes of lifting, bundling, packing, or loading into trucks, transference by rail and road, &c., the roots die back a considerable distance from their extremities, and the roots it forms afterwards are practically, if not theoretically, adventitious roots. It is obvious, therefore, that a well-ripened stem and root, with an abundant supply of reserve material, is in a better position to form a new set of roots, and enable the plant to regain its normal condition, than a similarly treated root and stem in which this material is reduced to a low ebb, by reason of a shortened ripening period in the preceding autumn. *A. C. Forbes.*

(*To be continued.*)

SPRING FLOWERS.

Lonicera Standishi. This is one of the earliest flowering species of this genus, if not the earliest of all; it opened its flowers this year on March 16. The pale yellow, almost white flowers have a very fine perfume. The flowers appear before the leaves.

Chionodoxa sardensis. Amongst the early flowering bulbous plants, I know no other so lovely, so freely flowering as is Chionodoxa sardensis. Certainly its sister, the well-known Chionodoxa Luciliæ, is a fine plant, but its flowers with the large white stars are too pale a blue. Chionodoxa sardensis, though it has rather smaller flowers, is much more effective, owing to the darker blue colour of the blooms, which form a large many-flowered inflorescence that may be compared with that of Scilla bifolia, which blooms at the same time or a few days later. But these are larger than the Scilla flowers, from which they also differ from the first by their deeper blue colour; those of Scilla bifolia, the first day after opening, are of a greyish-blue hue which darkens afterwards.

Eranthis cilicicus, of which I gave a short description in the *Gardeners' Chronicle* last year, is a good introduction into our gardens. It flowers earlier than our Eranthis hiemalis, and the flowers are much more lasting than those of the old species. In my garden E. cilicicus began to flower this year the first week in January, and is to-day, March 20, still in bloom. The difference between the plants is but small, but the leaves are somewhat more finely divided in E. cilicicus than in E. hiemalis. The flowers of E. cilicicus vary in size so much that some flowers are almost double the size of others.

Galanthus cilicicus Baker, of which the *Gardeners' Chronicle* gave a description and figure last year, proves to be an excellent acquisition. It flowered here from October till March in the open air, as well as in pots in the cold greenhouse. Certainly it will become a good market plant, as Snowdrops at Christmas fetch a very good price. The flowers are larger than those of Galanthus nivalis, though they did not yet reach the size of those grown in their native locality. In other respects the other's appearance is just the same as that of Galanthus nivalis. *Dr. U. Dammer, Berlin.*

THE ROSARY.

IN THE ROSE-HOUSE.

There is no more busy or anxious time than the present among Roses under glass. The majority of the plants are now at the most susceptible stage of growth, and need great care and attention if mildew, insect pests, and other troubles are to be avoided. How often we find the tiny flower-bud turn a brownish-black while still no larger than a Pea. Excessive drought for an hour or two, or extreme changes of temperature, will often cause this. But I find the most prevalent cause of this to be careless fumigation. Fumes which will not seriously injure or cripple the youngest foliage, will often kill the tiny flower-bud. The most sensitive variety of all in this respect is Niphetos. I would never rely upon fumigation alone for the destruction of insects, but use it in conjunction with a weak solution of some reliable insecticide. The latter will be useful as a wash, at the same time that it disposes of the half-killed insects. Strong measures will not do with the tender foliage of Roses under glass, for even if injury is not apparent at once, the check has been given, and the results are inferior. Roses enjoy a syringing upon bright mornings, and it is just as well to use a very weak insecticide at the same time. This will check insects, keep the plants clean, and serve the purpose of necessary moisture. Our worst foe at this season is mildew. This is much encouraged, if not actually caused, by extremes of any kind. A check to young growth, whether from the roots on top of the plant, is almost sure to induce mildew. It throws the plant out of health, and this insidious disease gains a strong holding in an astonishingly short time. Draughts and sudden changes of temperature are the most fruitful sources of attack, and must be avoided. It needs great care and attention to give ventilation to the best advantage, when we are having bright sunshine with a keen wind and severe frost.

I believe Roses are often over-potted, and that not sufficient use is made of liquid-manures. Good as many of the chemical foods are, I prefer the drainings from a cow-stall, or stable even, to any of them. Give it in a weak state, but frequently. Where Roses are planted in borders, such varieties as Maréchal Niel, William Allen Richardson, and Gloire de Dijon, to climb over the roof or back wall, loosen the surface-soil, and give them a thorough soaking of liquid-manure. One needs to use a little judgment here, for the surface-soil is no guide to the condition of that where the roots of the Rose-trees may be. Never half-water a plant. *A. Piper.*

FOREIGN CORRESPONDENCE.

A GERMAN METHOD OF CLEANING TOMATO SEED.

Although interesting to read the different methods for cleaning this seed, none seem so simple or easy as that used here in Erfurt. By following the instructions as here given, the seed can be cleaned at very small cost of labour. The pulp, being scooped out, is placed in a sieve, the mesh of which does not allow the seeds to pass through. The sieve is then placed in water, and the pulp is rubbed through the mesh of the sieve by means of the hand. In a short time, the pulp all being rubbed away, the seed remains perfectly freed from it. In the same way Melon and such seeds may be cleaned.

GARDENERS' WAGES IN GERMANY.

Having regard to the frequent complaints one hears as to the "starvation wages" received by our English gardeners, I think it may interest you to know what one earns in Germany. At one of the largest and richest nurseries in this important town of Erfurt, the workmen (distinct from improvers) receive 10 to 15 marks weekly (a mark is about equal to a shilling). Only the best workmen receive as much as 15s. weekly, and a man twenty-five years of age with a family will only receive 11s. 8d. weekly to commence, and his wages will increase yearly at the rate of 8*d*. weekly. Then the average weekly money earned by these poor fellows is 13*s*. 6*d*.; and although living is cheaper here, they certainly have to be more careful than their English brothers, who earn nearly half as much again. Improvers are paid at the rate of 44*s*. monthly, rising half-yearly at the rate of 3*s*. monthly. Is it surprising that England cannot compete with Germany in seed-growing, considering the matter of wages alone? It is to be wondered, considering the low shipping rates, that Germany does not send us more than she does in the Rose and fruit-tree growing lines. *L. J. Cook.*

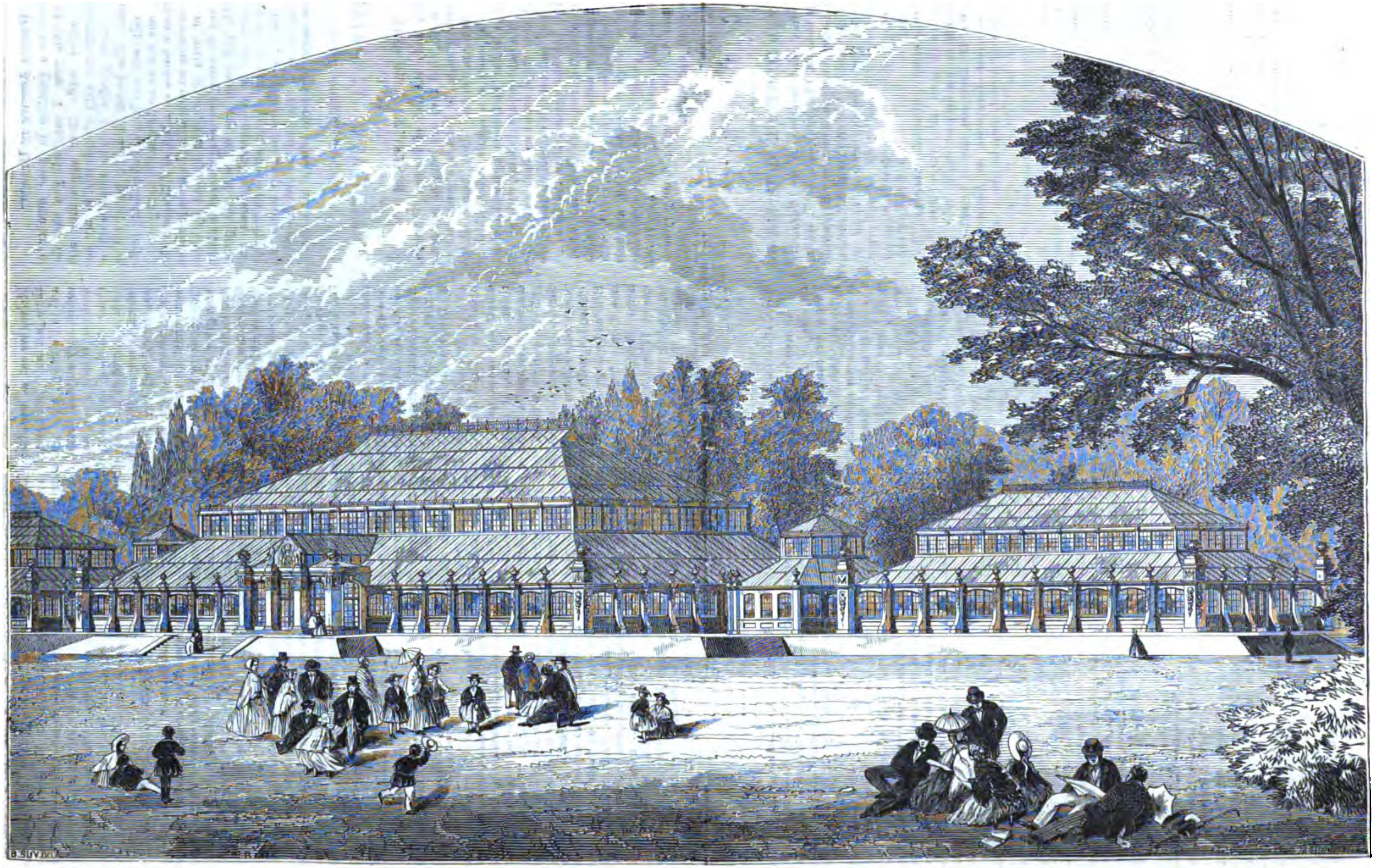


FIG. 73.—TEMPERATE-HOUSE, ROYAL GARDENS, KEW: EXTERIOR VIEW. (SEE P. 193.)

Winter Aconite in Utrecht.

In answer to a question in your number of January 14 this year, I may tell you that the Winter Aconites made their appearance and bloomed, though not very abundantly, in my not very large town garden in the third week of January last. The leaves should be permitted to die off entirely, and not be cut before being quite ripe, else there will be no flowers the next year. I have them as a border of a bed of Lilies, and the ripe seed spreading all around in the grass produces quantities of little plants, but by and by these disappear and die away, not being allowed to attain full growth, and being cut off with the grass. Aconites seem not to be generally known and appreciated at this time. In an article on "Spring Flowers," lately, they were not even mentioned, and yet they are so lovely, and the first flowers to bloom, even before Snowdrops. *Mrs. C. B., Utrecht, Holland.*

CONTINENTAL NOVELTIES.

NEW RACE OF ASTERS.

We learn from the list of Messrs. Vilmorin, Andrieux & Co. that they are bringing out some Asters which promise to receive a good deal of attention from gardeners. One named Reine Marguerite Japonaise is a needle Aster, which in habit belongs to the Perfection pyramidal class. The blooms, of a fine rose, are globular, with upright rays, which are twisted round on both sides. The stalk is strong, and capable of holding the bloom horizontally. At the present time the tints are light pink, rose-pink, red, pale blue, and white. The second race was noticed in the *Revue Horticole* in 1894. The blooms are large, very full, with numerous rays of great length, which are bent about the middle, giving the bloom the appearance of a Japanese Chrysanthemum. The colours obtained in this race are chamois-red, coppery-rose-red, coppery-red, and violet.

COLONIAL NOTES.

FRUITS AND FLOWERS IN QUEENSLAND.

I was very glad to read in the *Gardeners' Chronicle* of Oct. 29, 1898, that Mr. J. W. Miller, of Ruxley Lodge Gardens, Esher, is still growing William Tillery Melon. I brought this and several other varieties from England when I came out here, and it succeeded best of all. I was unfortunate in losing it for want of a place to plant one year. No seeds here that I have had to deal with will retain their vitality more than one year. Two applications to English nurserymen have been made for it, but in neither case was it true. My old friend, Mr. D. Thompson, late of Drumlanrig, sent me two sorts—Conqueror of Europe and Champion—but neither of them has done so well. I once grew a fruit of William Tillery under the influence of the electric light at Sherwood (where I lived with the late Sir W. Siemens) 11 lb. weight. There was but one fruit on the plant. We have plenty of fruits; but, with the exception of the Mango, which is very delicious, the Melon is our favourite. We have Pines, Grapes, Lichee, Star-apple (Chrysophyllum Cainito), Monstera deliciosa, Persimmons, Sapadilla-Plum, Guavas of several sorts, Eugenias, Passion-fruits (Passiflora edulis), and P. quadrangularis, the Granadilla; Oranges, Lemons, Tamarinds, Peaches, &c. The varieties of Peaches are all seedlings, and bear abundantly, but they are of poor quality. The fruits are ripe now (December), but none of the English Peaches will succeed. I have had them for six years, and have not seen a flower on either Royal George or Noblesse; indeed, they are dying out. The seedling Peaches bear the second year from seed. Grapes last about three months, but we have Pines nearly all the year round, and one gets tired of them. The Mangos and Grapes are just ripening. Melons we eat at breakfast. It is rather hot for them just now, but towards the end of January and in February, when the temperature is a little cooler, they succeed better. It is not the shade-heat that injures them, but the intense direct sunshine, which often reaches 176°. In the shade we seldom exceed 95° at this place, but a few miles inland it reaches 109°. This (the State) nursery was established for the purpose of introducing fruits, plants, drugs, fibres, and other things, of commercial interest. But Sugar-cane is the one crop grown by the farmers, and great attention has been given by the department to the introduction of new varieties from all tropical countries, but New Guinea has given us the greatest number. I have been working up the Coffee industry, and have succeeded in getting many of the farmers to make a beginning. The Coffee succeeds well here, and will pay better than Cane. Our available flowers are mostly tropical species. Amaryllids are grand. Our bedding-plants are a few Coxcombs, Balsams, &c.; but Verbenas, Phlox Drummondi, and Zinnias, also do well. None of the beautiful spring-flowers, such as Crocus, Tulips, Agapanthus, Polyanthus, Auriculas, Narcissus, &c., will live. Pears, Apples, Gooseberries, Currants, Strawberries, Raspberries, nor English Plums, will grow. Such plants as Bougainvilleas and Tecoma venusta are gorgeous. Poincianas, especially P. regia, are very beautiful. The colours of all these and many others are much more intense than you know them. Tecoma, or Bougainvillea, when they have entirely enveloped a house, are a grand sight; but still, the variety of the old country compensates for the few gorgeous things we have. The Orchids are poor; Dendrobium bigibbum is the best epiphyte, Phaius longifolius the best terrestrial; Dendrobium Hilli and a large buff variety are very good. This would be a beautiful country if its rainfall was better distributed. In the wet season I have known 17 inches of rain fall in twelve hours. I am sending you a photo of my house at the end of winter. The big plant on the porch is Beaumontia, but it is nearly out of flower. Allamanda Hendersoni covers all the west side; it flowers all the year round. *D. Buchanan, State Nursery, Mackay, Queensland.*

Botanic Garden of the Straits Settlements.

We have received the *Agricultural Bulletin of the Malay Peninsula* for December, 1898, and among its contents note articles on vegetables, poisonous plants of the Malay Peninsula, and Sugar-cane from seeds in the Straits Settlements; the latter subject illustrated with an excellent plate, showing the development of the young canes when twenty-four, thirty-eight, sixty-two, and eighty-three days old respectively. Further papers deal with shade trees, para-rubber, lemon-grass oil, citronella oil, Coffea stenophylla, and Coffee-blights, fungoid and insects.

As a mixture for destroying scale-insects, the following is recommended by Sir W. T. Thiselton Dyer:—"Heat milk nearly to boiling-point, and mix with double the quantity of kerosene; stir briskly until a thick creamy liquid is obtained. Dilute with ten times the quantity of water. Spray or apply with a brush, keeping the mixture constantly stirred. Sour milk is as efficient as fresh. If milk cannot be obtained, or if the mixture is required in large quantity, a strong soap-emulsion may be used in its place."

Agriculture and Forestry of New South Wales.

The Report, up to December 31, 1897, of the above-mentioned Department is now before us, and the Under-Secretary in presenting it, says that:—"The efforts of the Department to advance the agricultural interests have met with a full measure of success, and at no time in the history of the colony have the prospects of the industries allied to agriculture been so promising. Despite the fact that the two seasons covered by the period of this report were among the most disastrous ever experienced in the colony, the output of farm and orchard products has been unprecedented; and this pleasing circumstance can, I think, be logically regarded as a result of the adoption of better and more effective methods promulgated by the Department, which place the producer at more advantage in combating adversity of season."

"Queensland Agricultural Journal."

The January number of this publication contains papers on the Queensland Agricultural College, Tobacco, Cultivation of Chilies, Fruit Culture and Viticulture. Grafting fruit-trees is dealt with, and illustrated by plates showing the various processes. In the botanical section of the journal, Mr. F. M. Bailey mentions and illustrates the "Hedge Nettle," Stachys arvensis, as a plant poisonous to stock. There is also a paper on plant-helping insects, accompanied by a plate of Cirrhopetalum robustum, copied from the *Botanical Magazine*; notes on forestry, and on general subjects.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

The Earliest Celery.—As soon as the plants raised from the first sown seeds are large enough to be handled, let them be pricked off either into well prepared boxes or on to a gentle hot-bed. If on to a bed let the soil be rich, and it should be raised to within eight inches of the glass, which should be kept clean so as to admit the light. Before the seedlings are put out, the soil must be patted with a bright spade so as to make it firm and smooth, and when planting make the holes deep enough to let the young roots drop in easily down to the seed-leaf, taking care not to bruise them when filling in with the dibber. Slightly shade the plants in sunny weather, afford moisture to the soil; and keep the lights closed for a few days, when less and less shading may be applied, and air given gradually. If soot be dusted lightly over the plants, slugs will do no harm to them. The temperature ought not to be lower than 55°. Plants pricked off into boxes should be kept in a light position and as near the glass as possible; a peach-house or vinery newly started will suit them admirably. For the main crop a sowing of varieties may be made in boxes, seed-pans, or under hand-lights, using fine rich soil. If boxes or pans are used, glass or slates should be placed over them till germination takes place. But little warmth beyond that of the sun will be necessary. The plants may be pricked off into cold frames, or on to a warm border, special provision being taken to ensure quick yet stocky growth.

French Beans.—Plants in bearing should have the usable pods gathered as soon as they are fit for use, and if not required for immediate consumption they may be tied in small bundles, with the stalks arranged at one end, and stood on end in a saucer of water in a frost-proof room. Canadian Wonder and Pale Dun are varieties much liked, but they need larger pots than the early forcing varieties. Use ten-inch pots, and do not more than half-fill them when sowing the seeds. After this date, less drainage of crocks and more fibry loam at the bottom may be used. Sow six to eight beans in a pot, and keep in a temperature of 65°. Great care must be taken to cover up the frames at night, and to admit air, &c. In the open the work will almost be at a standstill; but if not done, make the best use of frosty mornings in getting vacant plots manured, Pea-sticks and Bean-stakes pointed, &c.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Bedding.—Verbenas which have been raised from seed, and Fuchsias, Coleus, &c., from cuttings, should be potted singly in large thumbs, 2½ inches wide by 4 inches deep, if such are in stock, as they take up less room. As soil for potting, that from the potting-bench, if the rubbish be sifted out of it, will do well for this purpose. The leading shoots need not be stopped till fresh roots have formed. It is well to dust over the leaves with

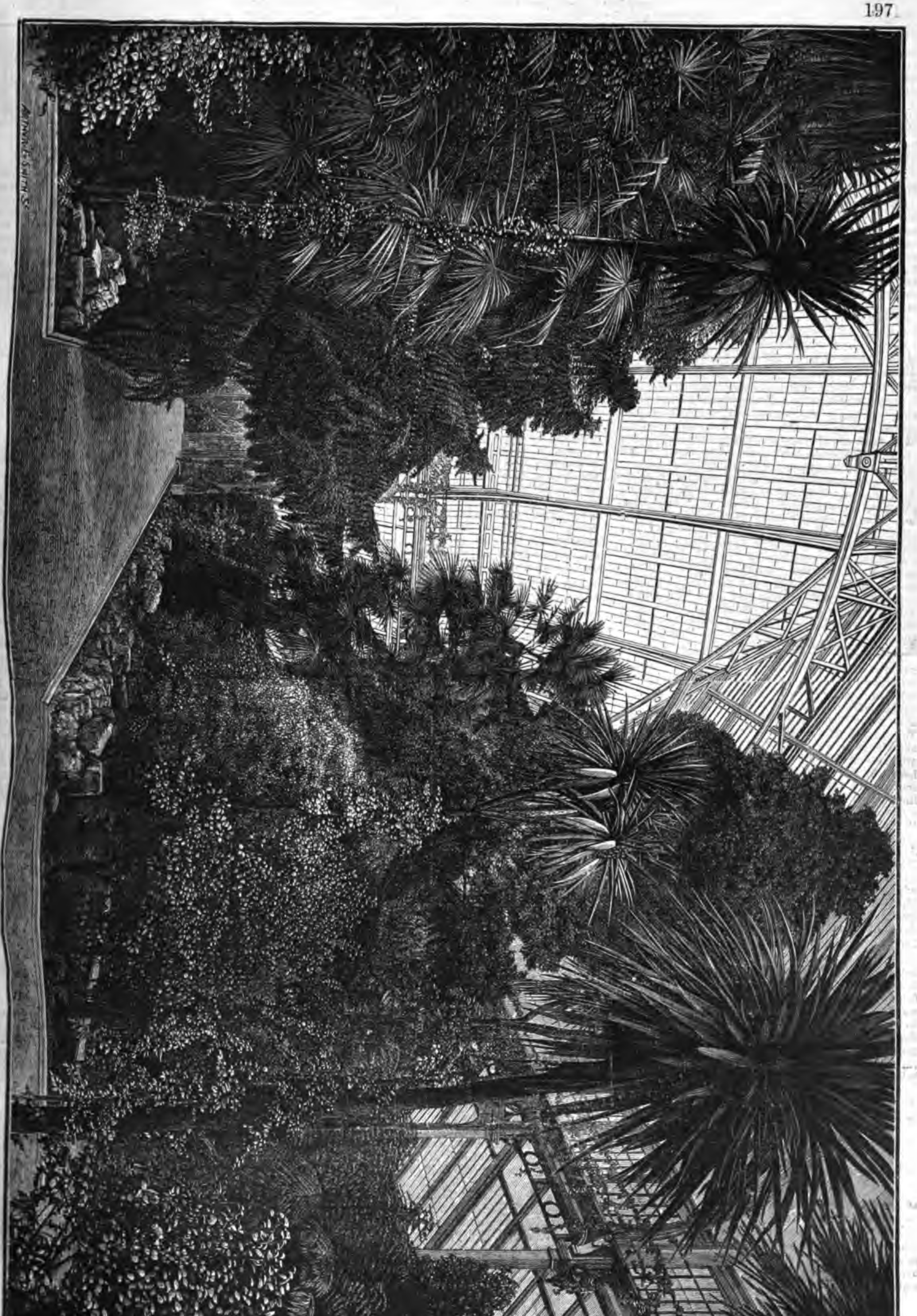


FIG. 74.—INTERIOR OF THE TEMPERATE HOUSE, ROYAL GARDENS, KEW. (SEE P. 195.)

flowers-of-sulphur, in order to prevent mildew, and fumigate lightly to destroy aphides, usually making its appearance at this stage. Seedling plants of Ricinus, Solanums, and other subtropical plants, should be shifted into larger pots, and kept growing by syringing the plants occasionally, and shading from the sun. A maximum temperature of 70° will be sufficiently high for them. The last cuttings of Iresine, Coleus, and other bedding plants, should now be taken, as after this date they rarely make good plants by bedding-out time.

Chrysanthemum maximum.—The newer and dwarfer varieties are the most suitable to plant out. This species of Chrysanthemum is easy of cultivation on a loamy soil, an occasional application of liquid-manure being all that they need. C. m. Duchess of Abercorn is a very dwarf habited variety, possessing pure white flowers of much substance; Elaine has handsome, large pure white flowers; C. m. G. H. Sage is the prettiest, having frilled petals; C. m. fimbriatum has thread-like petals; C. m. Maurice Prichard is a snowy white very fine flower; C. m. Mrs. Head gives flowers of great substance, and 4 inches in diameter; C. m. grandiflorum is a usually fine and late-flowering variety.

Potentillas (double).—These plants possess beautiful flowers of the richest shades of colour that appear during the summer and autumn months. The plants are of compact neat growth. A loamy retentive soil suits them best. The finest of the self-coloured varieties are P. californica, yellow; Drapeau, crimson-maroon; Etna, scarlet; Hamlet, dark crimson; Nigra plena, dark purple; Velours Pourpre, velvety purple; Vulcan, rich deep crimson. The varieties having parti-coloured flowers are Chinois, large rich maroon and yellow; Feu Follett, orange scarlet, with broad orange margin; Golconda, rich crimson, edged gold; Dr. André, gold yellow, suffused vermilion; Milton, yellow, heavily blotched bright red; Madame Rouillard, rich velvety scarlet, edged gold, very fine; and Le Vésuve, bright red, edged yellow. If set out at the beginning of April the plants make good-sized clumps, and they flower profusely the first year.

Pyrethrums, Double and Single-flowered.—Both varieties are very effective border plants, excellent for affording flowers for cutting. The plants generally are easily raised from seed, but selected named varieties are so cheap that it is preferable to purchase plants than to rely upon seed. To produce fine flowers, very rich soil, and an abundance of water when growing and flowering, are necessary. Slugs and snails devour the young leaves at the commencement of growth: a ring of soot should, therefore, be placed round each plant; lime is also useful as a deterrent. After flowering, a mulch of rotten manure over the roots is beneficial. P. Aphrodite, Penelope, Princesse de Metternich, are fine double whites; Solfaterre and Toison d'Or, double yellows; Alfred Kelway, Beauty of Laeken, Meteor, and King Oscar, deep crimsons. The best single varieties are Empress of India, Magnet, whites; James Kelway, Mrs. Bateman Brown, Sherlock, crimsons; Jubilee, Tasso, and Orlando, scarlets. It is best to plant the self colours, as the flowers pale out after flowering a few days to other tints.

Helianthus.—These perennial Sunflowers soon exhaust the soil, and require annual transplantation to produce fine flowers. The plants should be fully exposed to the sun, and the soil should be well manured and dug. In transplanting, let the plants be divided into clumps of six stems each, and plant them 3 inches below the soil. H. decapetalus major, H. maximus, and Soleil d'Or, are good varieties. H. rigidus, known in gardens as Harpalium rigidum, form a noble clump. H. doronicoides and lætifolius should be planted where the underground roots and suckers cannot ramble to the injury of other plants.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Tuberous Begonias.—If seed was sown as advised at the end of January, the seedlings will now require to be pricked out an inch apart into pans or small boxes, filled with a compost consisting of two parts loam, one part leaf-soil, with plenty of sand. After the strongest of the seedlings have been carefully lifted and pricked out, level the soil among the smaller ones, and afford a watering if necessary, to settle the soil about them, and in the course of ten days or so these may also be pricked out.

Kalosanthes coccinea, delicatissima, &c.—Plants which are showing signs of flowering may be assisted with occasional applications of weak liquid-manure. They should be afforded a position near the glass, and be occasionally turned round, to prevent their becoming drawn in one direction. Kalosanthes need comparatively small pots and a porous compost, composed of three parts loam, one part peat, and a liberal addition of broken brick-rubble, crocks or charcoal, and sand. They should be grown in the greenhouse during the winter, and until the flowering is past. In the summer they may be placed in a cold frame or in the open air.

Primulas and Cinerarias.—A small sowing of seed of the Chinese Primula and Cineraria may now be made for early flowering. The seed should be sown thinly in well-drained pots or pans, which have been previously filled with finely-sifted soil, and well watered. The Primula seed should be only slightly covered with fine sand, and that of the Cineraria may have a sufficient quantity of the compost sifted over it through a fine sieve to cover it. The pans should then be covered with a sheet of glass, and be placed in an intermediate temperature, or on a mild hotbed, or under a handlight in the greenhouse, shading carefully, or, preferably, affording the pans a position where they will not be exposed to direct sunshine. Primula obconica, P. verticillata, and P. floribunda may also be sown in quantity at this time, under the same conditions as the Chinese Primula. Great care should be exercised in affording water to Primulas, both before germination and while the seedlings are small, the roothold during the early stages of germination being so extremely precarious that a pan of seedlings might easily be ruined by one careless watering with too coarse a rose.

Flowering Shrubs in Pots.—Steps should always be taken to afford some kind of protection to shrubs which have been forced, and have done duty in the conservatory, if it is intended to use them for the same purpose another year. Sometimes it is possible to set apart an old house or deep pit for this purpose; but failing this, a rough framework might be constructed in a sheltered corner, the sides being matted, and the top covered with hexagon netting, or similar material, adding some mats during severe weather. The plants should be stood closely together under this protection, where they will gradually become hardened, and may then be plunged in the reserve ground. The above remarks refer to such plants as Ghent Azaleas, Spiræa confusa, double-flowered Cherry, Staphylea colchica, Lilacs, Hydrangea paniculata, and Rhododendrons. Deutzia gracilis should be cut back hard immediately after flowering, preserving any young growths which may have started from the base of the plant, and the plants placed in a house or pit where a gentle warmth is maintained, and every means adopted to induce them to make a strong growth. Liquid-manure should be afforded, the object being to produce as many strong shoots as possible from the base of the plant, and thoroughly ripen these by plunging the plants in the open air when the growth is completed. Where these and other flowering shrubs were potted in the autumn, as is usually the practice, no further potting should be needed at this season.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Zygopetalum Perrinoudi.—Our plants are pushing up their flower-spikes, and being rapid in development, they will have passed out of bloom before the plants stand in need of any top-dressing or repotting, that is, when the roots appear at the base. As soon as these are noticed, the work must at once be attended to. Zygopetalums like plenty of drainage materials, and some of the crocks may be inserted round the ball after it is in position. Loam, peat, and sphagnum-moss, in about equal parts, form a suitable compost. Place the plants in a warm shady part of the Cattleya-house; afford water sparingly till it seems they are re-established, and when the pseudo-bulbs cease to grow, keep the materials moderately dry, but do not cause them to shrivel.

Z. Mackayi and its varieties, and Z. maxillare, may often be seen in luxuriant growth in establishments where Orchids have no special treatment, but in collections of Orchids they are rarely seen in a healthy condition, though why this should be it is hard to understand. Very few Zygopetalums like disturbance at the root, hence repotting should be done but seldom. Thrips also cause ill-health and disfigurement, the nature of the young growths rendering it difficult to get at them without injuring the leaves in the process. Z. Mackayi and its varieties crinitum and intermedium, with Z. brachypetalum, can easily be grown in well-drained pots in equal portions of loam, peat, and sphagnum-moss, a good sized piece of crock or nodule of charcoal being placed here and there to keep the compost open. The temperature and other conditions of the Cattleya-house suit these plants best. Z. maxillare may be fixed to a piece of tree Fern-stem whose base is fixed in a flower-pot for convenience of staging. It requires a similar temperature but denser shade. My remarks apply equally to Z. rostratum, excepting that this species needs more warmth. As has been said, water must be very sparingly afforded after disturbance, except in the case of the last two, only affording it in quantity when the plants are re-established. Never let water lodge in the folded leaves.

Promenæa citrina, stapelioides, and xanthina, now included under Zygopetalum, grow well when planted in small hanging pans in the Masdevallia-house, and in the usual Orchid-compost.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Raising Seedling Apples and Pears.—Those who wish to raise new varieties should sow the pips at this season. The plants, if not fit for anything else, will provide stocks for grafting or budding. If merely stocks are to be raised, a border with a west aspect should be prepared preferably, and the surface brought into a fine condition; then shallow drills may be drawn ½ inch in depth and 6 inches asunder, in which the pips should be scattered thinly, and be covered with the finer particles of the soil. The plants will be large enough for transplanting in the autumn in lines, about 8 inches asunder, and 4 inches apart in the rows. The tap-root should be cut back when transplanting, to induce branching of the roots. If only a few seeds are to be sown, which is usually the case in private establishments, sow them in boxes or pots, and stand these in a cold frame or pit, and grow the young plants in pots or boxes for a time. To raise a few seedlings in this way gives but little trouble, and there is considerable interest in watching their progress, and should they turn out to be no improvement on existing varieties, the labour expended has not been great; while, on the other hand, the chances of a superior variety being forthcoming, the labour may prove to be well repaid. The pips from any desirable specimen Apple that may show a slight variation or improvement on the type may be selected. Last year I noticed among our Cox's Orange Pippins one fruit more oval in shape than others, and this fruit kept firmer into the spring months. The pips from this one were sown, but whether the seedlings differ from the parent in keeping or other qualities, has yet to be proved. There appears to be more need for a late-keeping dessert Apple of good quality than for early or mid-season varieties, while cooking varieties are already much too numerous. Pears may be raised similarly.

Transplanting Young Currant and Gooseberry Bushes.—Any that are still in the cutting-bed should now be removed to fill up vacancies, or planted out in nursery rows at 18 inches apart. Before planting, let the longer roots be shortened, also all stem-roots, and any buds on the stems likely to form shoots under-ground, or nearer to the surface of the soil than 9 inches.

The Black Currant-bud Mite.—Every Black Currant bush should be carefully examined, and if there are swollen buds, remove the shoots affected, and burn them forthwith. One of the best means of prevention is said to be strong growth, and to this end weakly bushes should be cut hard back, and top-dressed with rich decayed manure, wood-ashes, and fresh loamy soil in about equal parts. In forming new plantations, the rows should be at wide distances apart, thus leaving space for some other crop to be grown between, which assists in checking the ready spreading of the mite from row to row.

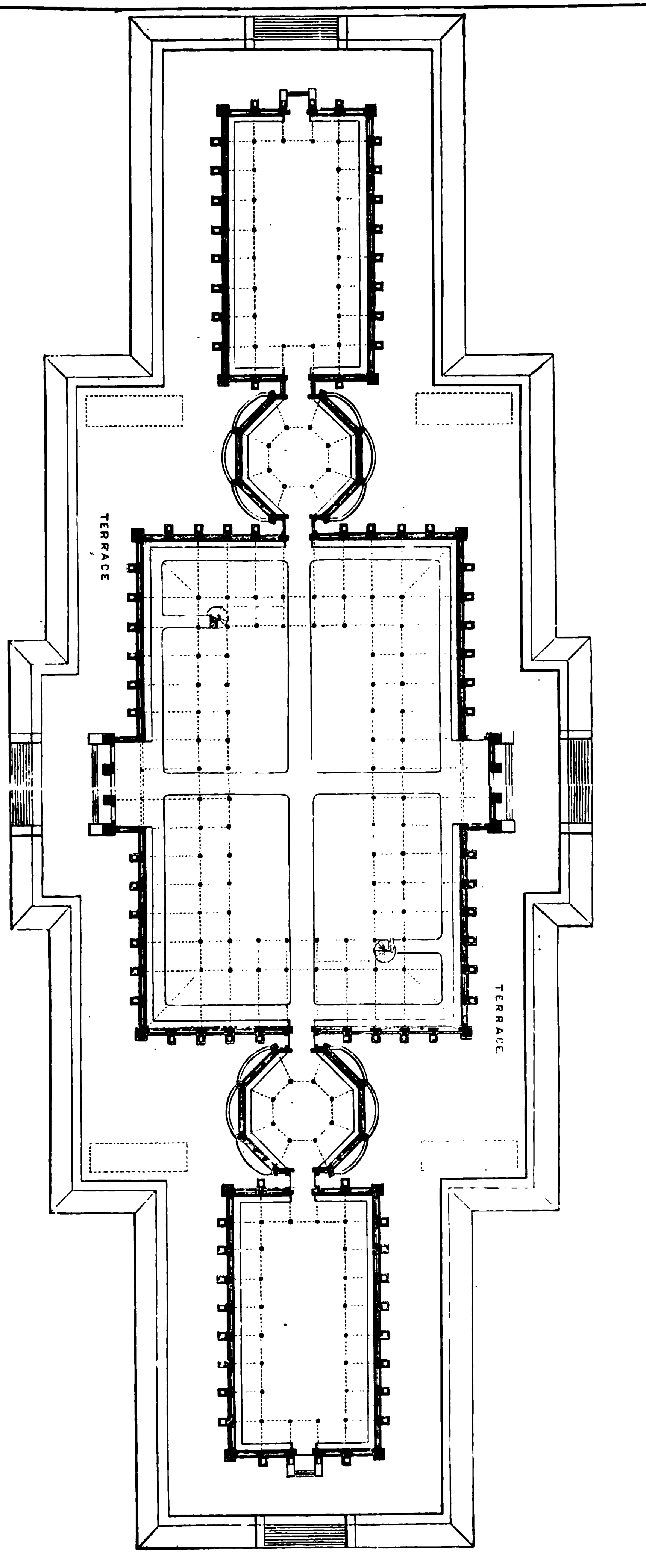


Fig. 75.—Ground plan of the temperate-house, Kew, as now completed. (See p. 193.)

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long
Rood Ashton, Trowbridge.

The Early Peach-house.—The earliest varieties in this house, if started early, December last, are probably stoning, and for a time no apparent progress will be made. If there is any doubt about a sufficiency of lime being present in the soil, it will be well to apply some at once in a slaked state to the border, and wash it down to the roots immediately it is spread over the surface. Lime is a very necessary agent in the growth of all stone fruits, and if applied in small quantities no harm can be done. The heavy strain imposed on the trees that are carrying full crops of fruit will render necessary the application of a fair amount of moisture to the whole depth of the border; and in the case of old trees, occasional application of liquid manure from the stable and cow-yard, diluted to a safe strength, will be helpful. Artificial manures answer a similar purpose, but unless something of a soluble nature be given, the trees will not derive an immediate benefit. The trees are better sustained if both natural and artificial manures are given. The growth of the trees will now be rapid, and the shoots must be tied neatly to the trellis, but retaining only sufficient to furnish the tree without crowding. When the stoning period has passed, the fruits will swell rapidly, and the better they are then exposed to sunshine the better. Where it happens that the foliage cannot be tucked in behind the trellis wires or branches, pinch off any leaves that directly overhang the fruit.

In the Orchard-house.—Peaches and Nectarines will now be in full bloom, and will need abundant ventilation in suitable weather to assist pollination of the flowers. In cool houses there is usually little difficulty in obtaining a good set; a sharp rap from the hand on each tree stem at noon dispersing a sufficiency of pollen grains. The same remarks apply also to Plums, Pears, and Cherries while in flower, but it is a safer practice to lightly brush the open flowers daily with a rabbit's tail, camel's hair brush or Pampas-plume. Where there are the means for supplying it, fire heat may be advantageously given during the flowering period, but only sufficient to dispel damp and frosty air. The severe weather of the past week or two has proved a serious trouble to the open flowers in unheated houses, and in very many instances light rather than full crops are inevitable. Trees in pots and borders in unheated houses have been kept on the dry side at the roots, so as to lessen the risks from frost, but sufficient water should now be given to moisten the soil to the depth of the border. Clear water is sufficient at the present stage. The orchard-house will conveniently accommodate a batch of Strawberries for supplying fruit just previous to the ripening of the earliest outdoor fruits. If they are put upon shelves, these may be lined with freshly-cut turf placed grass side downward. In this the roots will enter through the drainage hole, and find moisture and support when the sun has much influence. Wood moss may be employed instead of turf if this can be easily obtained in quantity, but unless the shelves have side strips this would dry quickly. From freshly-cut turf there arises just sufficient fresh grass to protect the pots from undue exposure to the sun.

VARIORUM.

Rhus toxicodendron: Poison-Ivy, and its Antidote. — According to Dr. Pfaff, of the Harvard Medical School, the poison of this plant, which in some persons causes intense irritation of the skin when communicated by touching the leaves, is a non-volatile oil, insoluble in water, and therefore not easily removed from the skin by washing. The oil is soluble in alcohol, and is made innocuous by sugar-of-lead. It will be seen by this that timely washing of the irritated parts with alcohol will serve to prevent injurious effects. Sugar-of-lead mixed with alcohol till the mixture obtains a milky appearance, is recommended in cases where irritation has become very great from delay to apply the remedy. It should be remembered that sugar-of-lead is a poison, and the solution must therefore only be applied externally. "*American Gardening.*" [The old remedy, "Goulard Water," which is an acetate of lead, answers the purpose very well. Ed.]

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR APRIL.

TUESDAY,	April 4	Scottish Horticultural Association, Meeting.
WEDNESDAY,	April 5	Shropshire Horticultural Society Show at Shrewsbury. Royal Caledonian Horticultural Society Show, Edinburgh (2 days).
THURSDAY,	April 6	Linnean Society Meeting. Royal Horticultural Society of Ireland, Exhibition.
SATURDAY,	April 8	—Royal Botanical Society, Meeting.
TUESDAY,	April 11	Royal Horticultural Society of Ireland, Meeting.
WEDNESDAY,	April 12	Royal Botanical Society, Exhibition.
THURSDAY,	April 13	Midland Daffodil Show in Edgbaston Botanical Gardens, Birmingham (2 days).
TUESDAY,	April 18	Royal Horticultural Society, Committee. National Auricula and Primula Society, Exhibition at Royal Horticultural Society Drill Hall; National Rose Society, Committee Meeting.
WEDNESDAY,	April 19	York Florists' Exhibition of Auriculas, Hyacinths, &c.
THURSDAY,	April 20	—Linnean Society, Meeting.
SATURDAY,	April 22	—Royal Botanical Society, Meeting.
SUNDAY,	April 30	International Horticultural Exhibition at Mont St. Amand, Ghent, Belgium, continued to May 9.

SALES FOR THE ENSUING WEEK.

FRIDAY,	April 7	Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 19 to March 25, 1899. Height above sea-level 24 feet.

1899. March 19 to March 25.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Temperature of the Air. At 9 A.M. Wet Bulb.	Temperature of the Air. Day. Highest.	Temperature of the Air. Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	Temperature of the Soil at 9 A.M. At 2-feet deep.	Temperature of the Soil at 9 A.M. At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 19	N.	35·8	33·2	40·8	28·8	...	38·9	41·7	43·8	19·4
Mon. 20	N.W.	34·3	32·0	39·7	27·8	...	38·4	41·5	43·8	22·3
Tues. 21	W.N.W.	32·6	30·5	37·2	19·5	0·03	37·5	41·1	43·8	11·7
Wed. 22	N.W.	34·0	29·4	41·2	23·5	...	36·6	40·5	43·8	16·4
Thu. 23	W.N.W.	30·1	27·9	37·1	23·8	...	36·4	40·2	43·5	15·5
Fri. 24	N.N.W.	36·6	32·0	40·6	24·9	...	35·6	39·7	43·4	16·3
Sat. 25	S.W.	41·9	35·6	48·1	20·6	0·17	35·5	39·3	43·1	11·6
Means...	...	35·0	31·5	40·7	24·1	Tot. 0·20	37·0	40·6	43·6	16·2

Remarks.—The weather during the week has been very cold, with strong north-westerly winds. Snow fell on the 21st, and rain on the 25th.

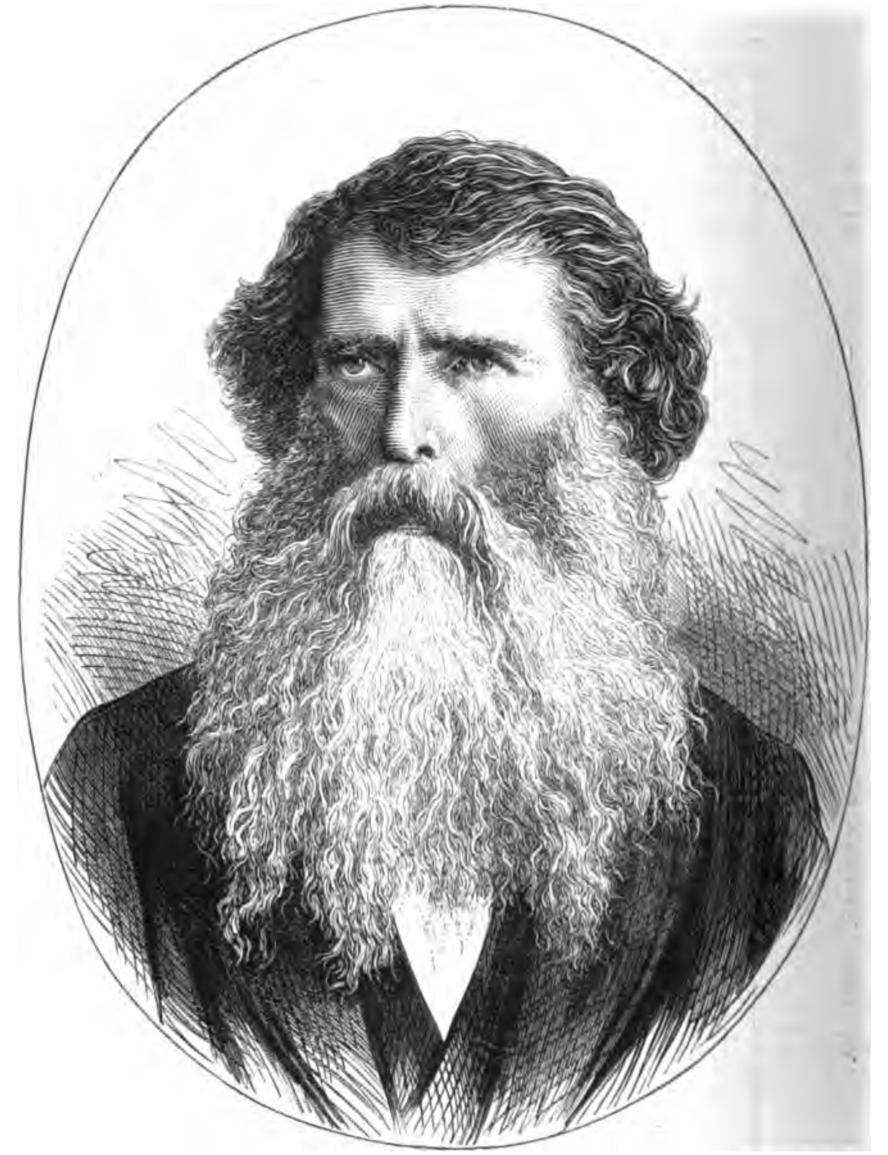
Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—**46 5°.**

Actual Temperatures :—

London.—*March* 28 (12 p.m.): **Max. 56°; Min. 43°.**

Provinces.—*March* 28 (6 p.m.): **Max. 55°,** Ipswich; **Min. 45°,** Shetland.

Charles Naudin. We are pained to have to announce the death of one of the most distinguished gardener-botanists of our times. Charles Naudin, the Director of the Experimental Garden at the Villa Thuret at Antibes, died suddenly on the 19th ult., in his eighty-fourth year. To the rank-and-file of gardeners his name will probably not be familiar, but those concerned with the problems of systematic botany, hybridisation, experimental cultivation, and the acclimatisation and distribution of economic plants, will recognise that a mighty leader has fallen. Naudin was born at Autun in 1815, and has been an occasional correspondent of this Journal almost from the beginning. The friend of Lindley, he extended his countenance and co-operation to the present Editor also.

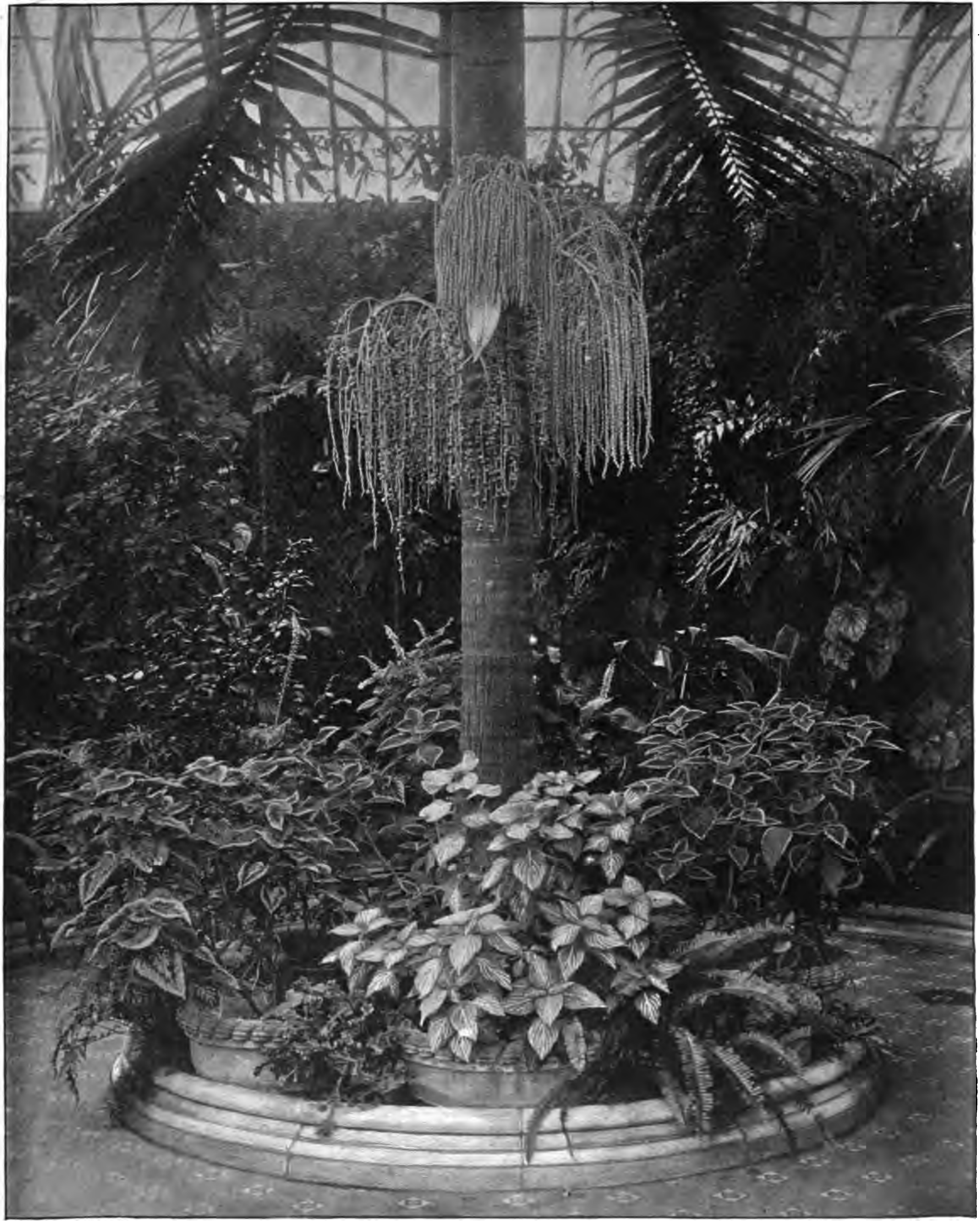


THE LATE CHARLES NAUDIN.

Records are not at hand, but relying on memory, we may allude to some of the principal features in his career. At the time of our first knowledge of the deceased naturalist, he was in the service of the "Museum" at Paris, the associate of Brongniart, and especially of Decaisne at the Jardin des Plantes. Here he carried on those remarkable experiments on hybridisation which will secure for him a permanent place in the history of botany. Here he studied with such minute care and accuracy the difficult order of Cucurbitaceæ, availing himself largely of the resources afforded by the garden, and by no means exclusively relying on the study of herbarium specimens.

For several years M. Naudin cultivated and made experiments on some 1200 of these plants belonging to various species and varieties, which by his observations and experiments, he was enabled to range under three species, each presenting very numerous and often analogous variations. The description and classification of the endless series of Gourds, Cucumbers, and Melons, are extremely remarkable, and valuable for cultural purposes, were it only for the practical hint obtained, that in the case of such plants as the Melon and Cucumber, it is better and more profitable to endeavour to improve existing kinds, than to introduce new kinds from other countries.

Here, too, he elaborated the Melastomaceæ, and contributed to the famous *Bon Jardinier*



THE PALM CONSERVATORY AT MALVERN HOUSE, THE RESIDENCE OF J. BURTON, ESQ., MAPPERLEY, NOTTINGHAM.

and the *Revue Horticole*, and here he produced, in conjunction with his friend Decaisne, one of the most useful horticultural treatises that exists, the *Manuel de l'Amateur des Jardins, Traité Général d'Horticulture*, a portion of which was translated and adapted to English requirements by Mr. Hemsley in 1873.*

After leaving the Jardin des Plantes, Naudin established himself at Collioure, in the Eastern Pyrenees. In the genial climate of this spot he was enabled to pursue his experimental researches, and his efforts to acclimatise and distribute to suitable localities plants of economic importance or ornamental character.

After the death of Thuret, the Villa Thuret was presented by his representatives to the French nation. Thuret, it may be remarked, was not only a genial and sympathetic student, and a most distinguished algologist, but he had, in conjunction with his friend Bornet, established a garden richly stocked with rare and interesting plants, and wherein the two botanists pursued their experiments in the hybridisation of Cistuses and other plants. When this little paradise became by gift the property of the nation, it was worked as an adjunct to the Paris garden, and if all Europe had been searched, no more competent a director than Naudin could have been found for it. He threw himself into the work with energy and zeal. The extension of the French colonial possessions in Algeria and Tunisia afforded him the opportunity of contributing to the development of their resources by the introduction of Eucalypts and other plants of economic importance. In this part of his work Naudin was helped by his ever zealous friend, Von Mueller, and the *Manuel de l'Acclimateur* of the French botanist, a most useful publication, is avowedly based on the "Select Extra-Tropical Plants" of his Australian collaborator.

Deafness and occasional severe attacks of neuralgia and sciatica prevented Naudin of later years from mixing much in the world of horticulture or botany. His letters, however, were always fresh and full of information, with many a classical or biblical quotation. He did not content himself with the Greek of the schools, but sometimes confounded his correspondents with a phrase or two of modern Greek. Naudin's merits were recognised by his own and by foreign governments; and what must have given him even greater satisfaction, was the knowledge of the esteem and veneration in which he was held by his colleagues. Naudin was a foreign member of the Linnean Society, and to him in recognition of his great services to gardening, and especially to hybridisation, a Veitchian Medal was awarded in 1897.

The meeting of the Académie des Sciences on the 20th ult. was suspended by the President, M. van Tieghem, as a sign of mourning for the father (*doyen*) of the Botanical Section.

THE MALVERN HOUSE CONSERVATORY, MAPPERLEY. — Our supplementary illustration shows the conservatory at Malvern House, Mapperley, Nottingham, the residence of J. Burton, Esq. As in many such structures, the chief effects are made to centre round some object prominent for its size, or the form or beauty of its foliage or stem, or of its flowers. In Mr. Burton's conservatory this central object is a Giant Seaforthia elegans, which is rendered especially noticeable by a stone curb surrounding the base, enclosing a space which can be filled with any kinds of decorative plants in season; in this instance, these consist of Coleus and Ferns in variety.

THE PROTECTION OF BIRDS.—The discrimination between birds useful and those that are injurious to gardeners and farmers should, with the increase of literature relating to the subject, become more and more easy. For instance, the Board of Agriculture publishes valuable leaflets describing in brief space the nature and habits of various British birds, and illustrating the different species. We have before us two of these pages: No. 54, the Spotted Flycatcher; and No. 55, the Swallow. Leaflets such as these should be widely spread abroad and studied. Copies of them will be sent free of charge and post-free on (unstamped) application to the Secretary, Board of Agriculture, 4, Whitehall Place, S.W. Further, we note the *Eighth Annual Report of the Society for the Protection of Birds* (for January to December, 1898), including a summary of the Wild Birds Protection Act. Any efforts tending to foster and increase rare and desirable species of birds deserve all encouragement.

DISTINCTIVE CHARACTERISTICS OF THE SEXES OF GINKGO BILOBA.—*The Journal de la Société Nationale d'Horticulture de France* for February contains a note upon the secondary distinctive characteristics of the two sexes of Ginkgo biloba. The species is known to be diœcious. Now with trees that never bear either flowers or fruit it is very difficult to distinguish the male from the female specimens, and this is sometimes of importance. M. L. Henry, head gardener at the Muséum, described in the *Bulletin de l'Association des anciens élèves de l'école d'Horticulture de Versailles* (1898, p. 597), an easy means of recognising the sexes in this particular instance. Many years of careful observation have enabled M. L. Henry to state that in Paris, with the female Ginkgo, the leaves fall three or four weeks later than with the male. Generally, male Ginkgos lose their leaves completely at the end of October, or more frequently at the beginning of November. At this period the female Ginkgos still retain all their leaves, which are all green and only turn yellow and fall at the end of November, or even the beginning of December. Premature frosts may accelerate this fall. But, according to M. L. Henry, there is always a very marked and appreciable difference between the season of the fall of the foliage of the male and of the female plants.

SPITALFIELDS MARKET.—We some time since drew attention to the possibilities attending the scheme to transfer this popular East-end fruit and vegetable market from the freeholder to the County Council; and now we are informed that, subject to parliamentary sanction being obtained, the Public Control Committee of the L.C.C. have arranged for the purchase of the freehold interest of the market, together with the rights attaching thereto, for the sum of £170,000, in addition to a sum of £1,250 for legal charges. The Council intend, when in possession, to make great alterations and improvements, in order that the market may fulfil all modern requirements.

"THE ORCHID HYBRIDS."—We learn that Mr. George Hansen, of Berkeley, California, is engaged in compiling the third supplement to his monograph, *The Orchid Hybrids*. As he finds the material accumulating so fast as to have difficulty in keeping note of all hybrids, he intends to print a new index with the supplement in question. It will be set by linotype; and as he will retain all "slugs" as cast, it will only be necessary to interpolate all additions as presenting themselves for future supplements, and the index will again be up-to-date. As only sufficient copies will be printed to supply all subscribers, no surplus stock will be kept on hand, and a new index will be furnished to every subscriber and purchaser of the additional supplement. How laborious Mr. Hansen's task is, is plain to all who ever attempted to register the thousands of crosses raised. He invites the co-operation of all interested in the work, and accepts gratefully every hint for improvement, correction, or augmentation of his lists. He expresses the desire to receive wider information than the one accompanying the crosses as exhibited. He desires to know the exact dates on which fecundation took place, when the seed was sown, and when the seedling reached the flowering state. Whether such crosses had already been raised at different places is immaterial to him, as he wants to register every source of supply for the hybrids in the different collections. It is saying but little to acknowledge the usefulness of Mr. Hansen's work, and to assist him in rendering his work perfect is but assisting ourselves.

THE MADRAS GOVERNMENT BOTANIST. — The Secretary of State has appointed Mr. C. A. Barber as Government Botanist in this Presidency. His duties, as defined by the Local Government in the order communicating his appointment, consist mainly in the prosecution of the systematic botanical survey of the Presidency. He will be also the constituted adviser of Government in regard to all questions and inquiries in economic botany that may be referred to him. The botanist is expected to work in the field for about eight months in the year. For working up the collections made in the field, the botanist will enjoy a recess of three or four months at Ootacamund, which will be considered his official headquarters. The herbarium, being a necessary adjunct to his work, and the more important books which formed the official botanical library of the late Mr. Lawson, will be transferred to the Government Botanist. *Madras Mail*. [In this connection we have only to remark that if the services of Mr. Barber are to be utilised in a manner that will render his appointment of some practical utility to the public, he should be hampered as little as possible with red-tape. Mr. Lawson was one of the ablest botanists that the Madras Government ever had, but his life, we believe, was not worth living owing to the way in which he was worried by the Board of Revenue Orders and Resolutions. Ed. *Indian Gardening.*]

GRAPE FRUIT.—In *Meehans' Monthly* for the present month is a representation of the Pomelo (Citrus), showing the flowers growing in clusters, and weighing down the branches with their weight. It is probably this clustered habit that has caused the fruit to be called "Grape fruit." The flavour of the fruit, we are told, is very different from that either of the Orange or the Lemon, and is seldom agreeable to those who partake of it for the first time, "but, as in other instances, it becomes enjoyable in time."

"THE GARDENER."—One more periodical to add to the twenty-one (see *Willing's Press Guide*) devoted to gardening, and yet not one more, for with *The Gardener* is incorporated *Cottage Gardening*, formerly published by Messrs. Cassell at ½d. a week. *The Gardener* is issued by the same firm at one penny. Paper and print are good; the articles, if we may so call them, are mostly scrappy, but lightly touched, and readable. American methods have been copied in some cases. Whether they will be to the taste of English readers remains to be seen. A first number seldom or never affords a fair criterion, but we have never seen a more promising one than this, and we wish it every success.

TESTIMONIAL TO MR. J. WALLIS.—The many horticultural friends of Mr. John Wallis will regret to hear of his retirement from the position of head gardener at Keele Hall, Staffordshire, owing to the untoward circumstances that have overtaken this famous establishment. It is the desire of the present owner, we believe, to let Keele, and in the meantime the gardens will not be maintained in their former condition. Some of the young gardeners who have been associated with Mr. Wallis at Keele, where he has been upwards of twenty years, are raising a testimonial in his favour, as an expression of their esteem. Subscriptions may be sent to the Honorary Treasurer, Mr. H. V. Boothby, Keele, Staffordshire.

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* *Handbook of Hardy Trees, Shrubs, and Herbaceous Plants, &c.* (Longmans.

Rain Still Wanted.—The month of March was unusually dry, and winds were frequent. Cultivators hope for considerable showers during April.

Rose Shows in the Present Year.—The following is a list of fixtures kindly furnished by Mr. Edward Mawley, Rosebank, Great Berkhamstead, Hon. Secretary of the National Rose Society. It comprises all Rose shows, or shows in which Roses form a feature, the dates of which are definitely fixed that have as yet reached him. He will be glad to receive the fixtures of any Rose shows not named below, or those of any horticultural exhibitions where Roses are made a leading feature, for insertion in future lists. June 14 (Wednesday), York (three days); June 24 (Saturday), Windsor; June 27 (Tuesday), Westminster (N. R. S.); June 28 (Wednesday), Bath and Croydon; June 29 (Thursday), Canterbury, Eltham, and Norwich; July 1 (Saturday), Crystal Palace (N. R. S.); July 4 (Tuesday), Gloucester and Harrow; July 5 (Wednesday), Ealing and Hanley (two days); July 6 (Thursday), Colchester (N. R. S.); July 11 (Tuesday), Hereford and Wolverhampton (three days); July 13 (Thursday), Brentwood and Helensburgh; July 20 (Thursday), Salterhebble; July 25 (Tuesday), Tibshelf.

Presentation.—Mr. C. W. Knowles, who for the past seventeen years has occupied the post of head gardener at Solna, Roehampton, and who was recently appointed to a similar position at Bagshot Park, the Surrey residence of H. R. H. the Duke of Connaught, was recently presented by some of his many friends with a clock in a marble stand, and furnished with an appropriate inscription. G. H. Pitt, Esq., the treasurer of the Putney, Wandsworth, and district Chrysanthemum Society, made the presentation, remarking that it afforded him great pleasure in handing over the present, which was but a very small token of the esteem in which Mr. Knowles was held by his many friends. Mr. Knowles in feeling terms thanked Mr. Pitt and his friends for the handsome present, and said, though as a time-keeper it would always remind him of the valuable slice from his life spent amongst them, it would also be a reminder (if that were necessary) of the pleasant associations and the many staunch friends he had formed in Putney and neighbourhood.

Her Majesty and the Gourds.—On Sunday last the Queen visited the *Festin des Congourdons*, or sale of Gourds, at Nice; but the event being held on the Sabbath, she made no purchase.

Presentation to Mr. T. Turton.—When it became known that Mr. Turton was leaving Maiden Erlegh for Sherborne Castle, Dorset, it was felt by his numerous friends that the occasion was suitable for evincing the high esteem and regard in which he was held. The result was shown on Wednesday, March 22, when Mr. and Mrs. Turton met a few of the Committee at the Abbey Hall, Reading, to receive from the hands of Mr. C. B. Stevens (the President of the Gardeners' Mutual Improvement Association), the presents set forth in the following address:—"Your numerous friends join in offering their hearty congratulations on your important appointment to the position of head gardener at Sherborne Castle. At the same time they are conscious of the great loss the Reading District will sustain by your departure from Maiden Erlegh. In the prominent position you have occupied as Chairman of the Reading Gardeners' Association, and as a member of the committees of the Reading Horticultural and Reading Chrysanthemum Societies, horticulturists have had the benefit of your knowledge and wide experience. Especially do they ounger men feel indebted to you for wise guidance and assistance on numerous occasions. It has been felt that your departure cannot be permitted without an expression of the high regard entertained for you as a successful exhibitor, a generous comrade, and a true friend, and you are now asked to accept the accompanying gold watch and chain with a purse of money as a token of good-will and esteem from those friends whose names are hereafter appended. We also beg Mrs. Turton's acceptance of a tea and coffee service." There were upwards of one hundred subscribers to the testimonial.

Linnean Society.—At the meeting of this Society held on March 16, 1899, Dr. A. Günther, F.R.S., President, in the chair, Dr. John Lowe, F.L.S., communicated some observations on the fertilisation of Araujia albens, G. Don, a Brazilian climber. Last summer it was blooming freely in Lord Ilchester's garden at Abbotsbury, where the flowers were visited by numbers of butterflies, diurnal moths, humble-bees, wasps, and large flies, many of which were captured and imprisoned for a time in the pinching-bodies (Klemm-körper of Müller). All these insects, with the exception of some humble-bees, in their visits to the nectar left their proboscis behind, and sometimes a leg, being not strong enough to detach the pinching-body. Dr. Lowe described the structure of the pinching-bodies, which are flat horny plates, situated above the nectar-cups, at each angle of a 5-sided hollow cone in the centre of the flower, in which is placed the stigma. There is only a small opening at the apex and a narrow slit at the base of each facet of the cone. To the upper point of the pinching-body the pollinia are attached. When an insect has its proboscis caught in the slit, which narrows always to its point, it can only escape by tearing away the body with its pollen-masses, or by leaving its proboscis in the slit. In the former case it carries the pollinia to the next flower it visits, and thus effects cross-fertilisation by leaving the pollen mass between the anther-wings, whence it rapidly passes into the cone. He had received a number of flowers of Araujia from Mr. Benbow, the gardener at Abbotsbury, in some of which he found the proboscis of a butterfly or moth in each of the five angles of the cone, showing the great destruction of insect life caused by the plant. Mr. N. E. Brown, A.L.S., who has made a special study of the Asclepiadaceæ, gave an interesting account of the manner in which the pollinia reach the stigma and some further remarks were made by Mr. A W. Bennett.

—— On the occasion of the evening meeting, to be held on Thursday, April 6, 1899, at 8 p.m., the following papers will be read—1, "On Carex Wahlenbergiana," by Mr. C. B. Clarke, M.A., F.R.S., F.L.S., &c.; 2, "On the Discovery and Development of Rhabdites in Cephalodiscus," by Mr. F. J. Cole.

Hooker's "Icones Plantarum."—Part IV. of the sixth volume (March, 1899), of Hooker's *Icones*, edited for the Bentham Trustees by Sir W. T. Thiselton-Dyer, contains illustrations of several plants of botanical interest. Among them various species of the Euphorbiaceous genus Hevea are given. The floral details of some of these are singularly like some of the Malvales or Sterculiads. Odontospermum pygmæum, t. 2583, is a desert Composite, shrivelling in dry weather, but expanding when the rain comes, hence it has been (with others) called the Rose of Jericho. Mr. Hemsley contributes further details relating to the extraordinary Pandanad named by him Sararanga sinuosa.

Fruit from the Cape.—The officials of the Union Steamship Company inform us of the arrival of the ships *Hawarden Castle*, and *German*. The former brought 725 boxes of Grapes, 7 of Plums, and 36 of Quinces; total, 768 boxes. The Grapes were all rather wet, and realised low prices; some were altogether poor and bad, and sold for a nominal figure. The Quinces arrived in good condition, but no market could be found for them, so they were sold to private individuals. The Plums were small, and in good condition, realising fair prices. The *German* brought 420 boxes of Grapes; only 107 of these were placed on the market, 40 boxes realising fair prices, being in good condition; 67 boxes were very bad, and sold for a mere nothing; 303 boxes were consigned to private individuals.

International Horticultural Exhibition at Mont St. Amand, Ghent.—The schedule of this exhibition, which opens on April 30 next, comprises 868 classes. Prizes to the amount of 40,000 francs (£1600) are offered, as well as "objets d'art" varying in value from 100 to 500 francs (£4 to £20). M. Madou offers for competition a dinner service for 24 persons; ninety-eight gold, and 148 other medals will also be awarded, including medals from the King and Queen. Enquiries should be addressed to M. Poelman-Maenhaut, Secretary of "L'Union," Mont St. Amand, Ghent.

Paris Chrysanthemum Committee.—The February number of this committee's *Journal* is unusually bulky, containing, as it does, eighty-seven pages. Among its contents is an article by M. Ernest Calvat on obtaining big blooms, than whom few perhaps are better qualified to speak in France. The report of the committee's work for 1898 then follows, part of which is devoted to a tabulated list of First-class Certificates awarded. There are also reports of an early-flowering show in Paris on October 13 last, and of local Chrysanthemum gatherings at Langres, Cognac, Troyes, Paris, &c. There are several illustrations, and a list of members concludes a somewhat interesting number.

Publications Received.—*Manual Pratico do Viticultor Brazileiro*, pelo Dr. Campos da Paz (Rio de Janeiro, Imprensa National).—*Transactions of the Royal Scottish Arboricultural Society*, vol. xv., Part III. This includes papers on the "Establishment of State Model Forests for Scotland," expressing the opinions of French and German experts on the present forestry system; working plan for the pit, wood working circle, Raith estate; Recent investigations in Prussia in regard to the quality of timber, &c.

HOME CORRESPONDENCE.

Eucalyptus Gunnii.—The seeds of this hardy tree were first sent me by my friend, David A. Shennan, of The Estancia, Negrete, Argentina, in 1887, who has naturalised various non-American plants on the southern part of the province of Buenos Ayres. Realising that unless perfectly hardy they were useless to me, I gave them their first transplant in September, 1887, when about 10 inches high, to a newly-trenched hill-top of the poorest gravel soil with northern exposure, among a sowing of Carrots. They throve, or most of them did, from the first, and soon began to make wood, flowering in their fifth year from seed; the buds, just like Fig-buds, appear on the shoots of 1899, only to burst into flower in 1900. I have some 500 to 700 plants planted out in woods, &c., raised from English seed, and have given away many more. The plant comes originally from the south end, i.e., the coldest, stormiest, and most exposed end of our southernmost Australian colony, Tasmania, a part of the colony where you realise the fact of the South Pole. The lot originally sowed have reached a maximum of 45 feet in height in twelve years, and a girth of 31 inches 4 feet from the ground. Had I planted them in better soil, or in a peaty wood, as I have since done, the results would have much exceeded this. The drawbacks to planting E. Gunnii in a cover is, that they attract mightily both hares and rabbits, and, in fields, sheep; that they are apt to overgrow their power to stand upright, and want stakes for a year or two—or some of them do. They vary much in habit, some being bushy to the ground, some bare for, say, 30 feet. The best I have (of the junior or pure British breed) has got his roots into a grave, whose tenant died of small-pox, in the parish churchyard, and it enjoys the situation hugely; he affects the bushy type. The hard winters of four or five years ago touched up some trees, which lost a year's growth, but regained it in the next. Brightlingsea village will be remarkable in, say, 1950, with hardy evergreen Gum trees, 160 feet high, as I give seed to all the inhabitants who want it, and many are growers. Cheshire (Mr. Egerton Warburton), Monmouth (Mr. Reginald Herbert), Suffolk (Sir Cuthbert Quilter), Huntingdon (Mr. Newton), Lincoln (Lord Ancaster), Devon, Surrey, and Essex in particular, have been trying the experiment with Essex-grown seed. The wood is hard, and presumably valuable. *John Bateman.*

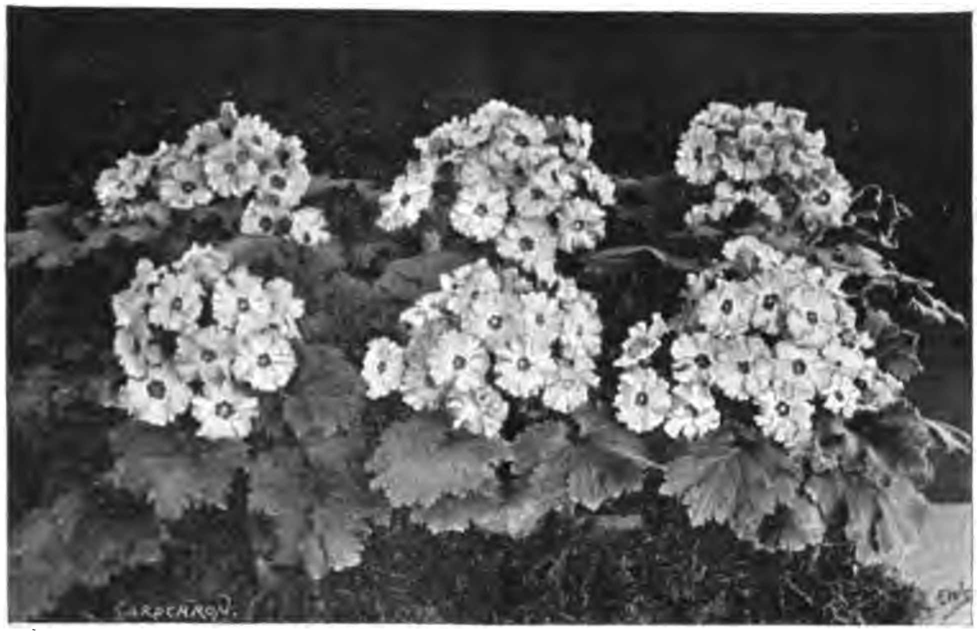


FIG. 77.—CHINESE PRIMULA "SWANLEY GIANT": A LARGE-FLOWERED FORM OF THE OLDER VARIETIES; PINK OR PURPLE IN COLOUR.

From a photograph from Messrs. H. Cannell & Sons. See article in our last issue, p. 179.

PODOPHYLLUMS.—The best description I can give of the manner these plants push through the ground in the spring, is to say that they rise from thence like a folded umbrella, and when the stalks are high enough, expand in the same way as umbrellas are unfolded, with the difference that the solitary circular leaves become flattened but round. I received my plants from the greatest American Shakesperian authority, collected, I believe, in the country around Philadelphia—a sure proof of their being very hardy. The flowers are singular owing to the nakedness of the prominent seed capsule—a large white Poppy in form, but bereft of its stamens. P. peltatum develops yellow fruit in its native habitat. This I have not seen on home-grown examples. Podophyllum Emodi is of larger growth, the leaves being distinguished by black spots. It produces, moreover, large berries of a bright scarlet colour. Both species succeed best in a moist peaty soil. *William Earley.*

POTATOS: SYON HOUSE PROLIFIC.—In Mr. J. B. Joel's garden at Northaw House, Barnet, I was recently shown a fine sample of this variety, and to satisfy my enquiry as to their flavour I was given a dozen tubers, half of which I had baked, and the other half boiled, and in both cases I found them to be of the very finest quality. Mr. May, the gardener, who has taken many prizes at the Royal Aquarium shows for Potatos and other vegetables, speaks of Syon House as being the best recent introduction which has come under his notice. Gardeners do not, as a rule, record their experience of new varieties of Potatos sufficiently, and they might give much greater publicity to little-known sorts. Syon House was raised by Mr. Wythes, and received an Award of Merit by the Royal Horticultural Society in 1895. The tubers are inclined to be oval in shape, with small eyes, and from what Mr. May told me, it is one of the latest keeping varieties. *H. M.*

PASSIFLORA RACEMOSA SYN. PRINCEPS.—I was pleased to note the favourable notice of this beautiful and useful Passion-flower from the pen of "E. S.," in the *Gardeners' Chronicle*. So far as I remember, it is the only one that blooms in racemes, and the habit, character, and colour are all that can be desired as a climber on a glasshouse roof or wall. The foliage is distinct and striking, and goes well with the characteristic flower. In cutting the flowers of this plant for decorative purposes, the shoots should not be cut hard back, as when a half-inch or so of shoot is left, one or more racemes of blossoms will come on it, after the manner of Hoya carnosa. Though I have chronicled this fact before more than once, it does not seem to be generally known nor acted upon, hence my allusion to it here. The species may be severely pruned by closely spurring the young shoots back to the older shoots, as by so acting a great number of fine blooms are produced. It is pitiable to see this fine plant so mismanaged as to be a mere tangle of shoots and bracts, with but few perfect flowers, and these perhaps crushed against the glass. The blooms are very effective for the furnishing of vases, baskets, epergnes, &c., inasmuch as the bracts and unopened flower-buds, or the drooping racemes, are almost as beautiful as the fully expanded flowers. *D. T. F.*

THE SHAMROCK.—If your correspondent, "D.," will refer to the *Cybele Hibernica*, ed. 2, p. 159; *Irish Naturalist*, 1892, p. 95, and 1893, pp. 207, 349 to 361; *Journal of the Proceedings of the Royal Society of Antiquaries of Ireland*, vi., 211 to 226, 349 to 361; or to the *Dictionary of English Plant Names*, 425, or to the first Irishman he comes across, he will learn that the Wood-sorrel has no claim to be considered the Shamrock, in spite of its trifoliate foliage. Considering how much careful investigation has been bestowed by Mr. Nathaniel Colgarn and others upon this interesting antiquarian subject, it is, I think, to be regretted that literature should be encumbered by notes such as that printed on p. 189. *James Britten, British Museum.*

PROSPECTS OF FRUIT-CROPS.—Here at the present time there are prospects of an abundant crop of hardy fruits. In many cases the number of flower-buds is so great that I am doubtful if it is not the reverse of a blessing, as trees thus loaded with bloom not unfrequently fail to crop so well as those on which there is only a moderate show. Trees, however, which grow on a deep strong soil, as ours, are not so liable to fail from superfluous flowering, as those which may have their vitality enfeebled by drought acting on shallow, light soils. Trees on a clay soil are more robust and naturally stronger, and their sufferings from lack of moisture less trying. What is to be feared is frost at the flowering time, which ruins our hopes when every other condition may be in favour of a good crop. [The recent frosts have occurred since this paragraph was written. ED.] Last year there were complaints in some districts of Plum-trees having suffered from drought, but nothing was harmed excepting Strawberries. Strong growing varieties of fruit-trees were benefited, on the contrary, by the check the heat and dryness caused, which acted on them in a manner similar to that caused by root-pruning. In a garden planted with pyramids and bushes in 1893, the Pears this year are unusually promising, even kinds which cropped heavily last year are prolific of flower-buds. Of this I may name Baronne de Mello, Beurré Diel, B. Fonqueray, B. Hardy, Doyenné du Comice, and Louise Bonne of Jersey. Whilst Catillac, Bellissime d'Hiver, Marie Benoist, Souvenir du Congrès, Triomphe de Vienne, and Josephine de Malines, usually shy bearers, are thickly set with flower-buds. It may be remarked that the last-named, owing to its flowering upon the points of the shoots, is better as a pyramid, or bush, than as a trained tree against a wall, or as a cordon, or espalier. Of Plums, Denniston's Superb, Rivers' Early Prolific, Grand Duke, Jefferson, Kirkes, and Oullin's Golden Gage, afford the finest show of flower-buds. The Czar, Monarch, and Pond's Seedling, having the fewest. Cherries are likewise promising, especially Belle Magnifique (a prolific form of Morello), May Duke, and Late Duke. Apples with the following exceptions are very promising, Annie Elizabeth, Dutch Mignonne, Gascoigne's Seedling, Gloria Mundi, Lady Sudeley, Lord Burghley, and American Mother. A row consisting of thirteen trees of Bramley's Seedling, which in no year have borne more than a few fruits, are well furnished with flower-buds, a result of a severe pruning of the roots, carried out in the autumn of 1897. *Thos. Coomber, The Hendre Gardens, Monmouth.*

NEW AND OLD VARIETIES OF THE POTATO.—The Potato, like many other vegetables, has been greatly improved in the last thirty years. It used to be thought that nothing surpassed the Ashleaf variety in flavour, and many persons will have it at their tables as long as it is possible; and after this variety is past, then they rely upon Magnum Bonum, which lasts in good condition till the Ashleaf comes in again—two good Potatos, no doubt, which would take a lot of beating if only two were to be grown. But if the garden is not large enough to allow of the Ashleaf being planted in sufficient quantity to supply a large household, then other more prolific croppers must be planted, and Ashleaf be grown only for the best table. I put nearly as much value upon a good late Potato as upon early ones; in this way, when the demand is large, digging must not be started till the supply is equal to the demand. This can be easily effected if but Magnum Bonum and Up-to-Date are planted; as these are valuable varieties of good quality, until the month of July if necessary, and therefore after New Potatos are fit for consumption. Usually the cook is glad of some firm old Potato for making up dishes. If there is plenty of ground at command, new varieties should be tested; but those who are restricted in that particular, perforce have to rely upon the experience of others, as related in the gardening press, &c. The following have been tried at Compton Basset, and found excellent, namely—Sutton's Harbinger, Ringleader, Early May, Sharpe's Victor, Carter's First Crop, Advancer, and Early Favourite; these are early, free-cropping varieties, of good quality. As Main-crop varieties, cropping well, of excellent quality, and capable of resisting disease to a certain extent, are Carter's Snowball, a very fine Potato, a cross between Schoolmaster and The Canon, of nice shape, round in form, with shallow eyes, and a rough skin, white when cooked, of the finest quality, and a heavy cropper; Carter's Monarch, also raised from Schoolmaster, an excellent round Potato; Ideal, a prodigious cropper, very handsome, well suited for exhibition, and yet excellent for the table; Sutton's Windsor Castle, a heavy cropper, and resisting disease; Sutton's Reliance keeps well, and crops splendidly, a fine exhibition tuber, not liable to take the disease; Magnum Bonum Improved, a most trusty variety for a late supply; Up-to-date, a late Potato, and a huge cropper, with large tubers, good for field culture, nice flavour, and keeping till a late date, one of the heaviest croppers extant. Nothing is more injurious than close cropping, and I afford a space of 3½ feet between the rows, so that I can interline with other vegetables. Late varieties of robust habit at this distance produce large crops, and being less crowded are not so liable to become diseased as close-planted rows. I find there is no manure equals that from the farm-yard, laid on the land before digging it; blood-and-bone manure being afford at planting-time at the rate of 6 to 10 cwt. per acre. *W. A. Cook, Compton Basset.*

APPLE MANNINGTON'S PEARMAIN. — This fine late dessert Apple is considered to be one of the richest and best-flavoured of table varieties. It is now a very old variety, having, according to the *Fruit Manual*, originated as far back as 1770, in a garden which twenty years ago was in the possession of Mr. J. Mannington. It is supposed to have originated as a chance seedling, for the tree was found in a hedge-row, a small scrubby specimen, on a spot where a cider-mill and press were formerly worked, and is supposed to have been produced from a pip or kernel from the pulp thrown away after pressing. This tree never attained to any great size, but continued to preserve a stunted habit of growth till it died, about the year 1820. Grafts were taken from it, and so the variety remained in the neighbourhood until the autumn of 1847, when specimens were sent to the London Horticultural Society, and Mr. Thompson named it Mannington's Pearmain. It was them distributed by Mr. Cameron, nurseryman, of Uckfield, Sussex, who said of this Apple that "the fruit should be allowed to hang late upon the tree before it is gathered, so as to secure its peculiar richness of flavour, and long period of duration; for if gathered too soon, it loses much of its fine richness, and is very apt to shrivel. This must have been the case with some fruit which came into my possession a short time since; a few were shrivelled, the flesh hard in texture, and wanting in flavour, while the plump fruits, apparently more matured, had that rich flavour peculiar to the variety. Dr. Hogg's description of the habit of growth is confirmed by experience:—"The tree does not attain a large size, but is perfectly hardy, and an early and excellent bearer, young trees, only two or three years from the graft producing a considerable crop of handsome well-grown fruit. It was first put into commerce in 1849 by Mr. Cameron, dwarf, maiden trees being sold at half a guinea each. *R. D.*

SEQUOIA GIGANTEA AND OTHER TREES.—A good specimen of the Wellingtonia compels admiration. Have many of us reflected what root-anchorage the tall, graceful specimens seen occasionally require to keep them in an upright position? Having occasion recently to move one that was growing on the estate of E. S. Hanbury, Esq., Hertfordshire, my curiosity was somewhat satisfied on that point, the number and size of the roots being surprising. The tree in question was not a very tall one, the height being 42 feet 8 inches, and the circumference 3 feet from the ground measured 7 feet 9½ inches. Through some cause or other it unfortunately lost its leader many years ago, that being one of the reasons for now removing it; besides which, it spoiled the view obtainable of the adjoining trees. The soil and subsoil vary very much at this place, but this particular tree had been planted on a bed of clay, which had to be chipped away with pick-axes, so hard and dry had it become round the base of the tree. I should be glad to know if any one in England has felled so large a specimen of this species. There are other trees of the same variety here, one being upwards of 70 feet in height, 12½ feet in circumference 3 feet from the ground, with a spread of branches 30 feet in diameter. The collection contains some good specimens of Cedrus atlantica and C. Libani, the former being remarkable for their glaucous appearance. Sequoia sempervirens is also represented, one specimen measuring 9 feet 2 inches in circumference 3 feet from the ground, and being at least 50 feet in height. It is densely furnished with branches from top to bottom. *A. W.*

SKIN IRRITATION CAUSED BY PRIMULA SINENSIS LEAVES.—Is it generally known that Primula sinensis is quite as liable to cause irritation as the Primula obconica? my attention has been called to the fact by a gardening friend of mine, the skin of whose hands and arms was so irritated that he could not get any rest for several nights; the variety in question was Rosy Queen. It would be interesting to hear if you or any reader of the *Gardeners' Chronicle* have ever heard of a similar case. My friend, I may state, grows no other species of Primula than P. sinensis. *J. R. Wilson, Haselbech Hall Gardens.*

AN ADVERTISER'S COMPLAINT.—I applied for a vacancy for a head gardener, which was recently advertised. With my letter I enclosed testimonials for inspection. In two days the testimonials were returned in an unstamped envelope, for which 2*d.* was charged by the postal authorities. There was not a word inside to say if the sender was suited or otherwise. I wonder if any other advertiser has had a like experience. I enclose envelope for your inspection. *A. J.*

THE ROYAL GARDENERS' ORPHAN FUND. — As your correspondent, Mr. J. B. Stevenson, has referred so pointedly to me in his recent communication on the above subject, I would like to explain that I agree with him that single candidates from any family should always have preference over a second candidate from the same family, although now and then cases do occur in which there may be but one, or two at the most, orphan children in a family, and in another, four or more quite little ones; and where that is so, such a case is a more distressful one than is the first. But my suggestion made at the general meeting, viz., that there should be at least four children under twelve years of age to entitle a second to become a candidate, was meant to strengthen the hands of the committee, as evidently that body was scandalised on finding an effort made to put a third child from one family on to the Fund, practically exploiting it in a most improper way, whilst I felt equally scandalised to find the only two children of one family were both nominated; and such an amendment as I suggested would have in future rendered such nominations impossible. I hope the committee will agree to give effect to this proposal as an amendment to the rules at the next annual general meeting. With respect to the objections gardeners entertain against subscribing, some are of a nature it would not be well to publish. Some are based on one thing; not a few on distrust in connection with the elections; but the greater portion is based on absolute indifference. Men who have little ones think their children will never want the Fund's benefits, and because these men will not subscribe, others shelter themselves behind the objection that if fathers of little ones will not try and help themselves a little, why should they? With our philanthropy, we are in danger of bringing those who should try to help themselves into a condition of utter indifference. *A. D.*

CARNATIONS EATEN BY THE SPARROWS. — Although the winter favoured the Carnation out-doors, some cultivators in my neighbourhood have had to contend against a plague of sparrows, and so serious is the mischief wrought, that scarcely a plant has escaped their attention. Several collections I have observed lately present the same appearances as my own. At first I was at a loss to account for the damage, as although rabbits are numerous, the Carnation-beds are surrounded by rabbit proof wire-netting, 4 feet high. At length, I discovered the miscreants were sparrows—no fewer than six of the birds could be seen at times pecking the plants. The damage inflicted is almost as great as that caused by a rabbit. The best deterrent is soot dusted on the leaves when moist. A Carnation plant is sent for your inspection. *E. Scaplehorn, Woking.* [The leaves and small shoots were closely nibbled, as if by a rabbit. It would be well another year to plant Lettuces or other herb more succulent than the "grass" of the Carnation, as "tit-bits" for the sparrows, and thus wean them of their naughtiness. Our own Carnations have suffered in a similar manner, but we are not sure whether, in our case, pigeons are not the culprits. Ed.]

HARDY FRUITS AND THE WEATHER. — Last spring, during the flowering-time, sharp frosts, accompanied by snow and rain, played great havoc with the various kinds, and I fear that this year full crops will be the exception, not the rule, unless we get more genial weather. The week which ended on March 25 was most exceptional for downright wintry weather, 12°, 14°, 18°, 16°, 14°, 16°, 17°, of frost respectively, with cold biting winds, and storms of snow at intervals, were experienced on successive days. By the accounts in the papers we do not seem to have had so heavy a snowfall as in other parts. The storms in this locality were of short duration, and the snow was rapidly dispersed by the sun. Apricots and Peaches have about half their blossoms expanded, but I do not think these have suffered much, so far as can be seen, being well protected by wall copings and fish-netting. The blossom-buds of Pears and Plums, with the exception of one or two of the earlier flowering varieties are still unexpanded. Small fruits are late this year, and the leaves have but just began to unfold. All kinds of hardy fruit-blossoms have a promising look. *Geo. Woodgate, Rolleston Hall Gardens, Staffordshire.*

THE WEATHER AT BATTLE, SUSSEX.—The following is a record of the amount of frost registered by thermometer in the gardens at Battle Abbey, inside the walls, at 3 feet from ground:—19th, 12°; 20th, 12°; 21st, 18°; 22nd, 22°; 23rd, 14°; 24th, 14°; 25th, 17°. Peach and Plum-trees on south walls were in full bloom, and covered with hexagon netting, do not appear at present to have suffered much. A welcome change set in on Saturday. *Wm. Camm.*

—— **IN NORFOLK.**—On Wednesday, March 22, the wind continued to blow strongly from the north-west, and the air was very nipping in the shade, although there was a good deal of sunshine. The wind died away before midnight, and our Negretti & Zambra thermometer had fallen to 24° two hours earlier. The lowest reading on Thursday at 6.30 A.M. showed 12° of frost, and snow fell between 7 and 9 A.M. to the depth of 1 inch, the wind backing to the south-ward. It is now calm, and the worst seems to be over. *J. Batters, Gillingham, Norfolk.*

—— **IN THE MIDLANDS.**—We were visited on Tuesday, March 21, with a very heavy snow-storm, accompanied with severe frost, the effects of which will, I fear, prove disastrous to the fruit crops, more especially Apricots, Peaches, and early Pears. In these gardens those trees are protected on walls with a double thickness of fish-netting, and in winters of ordinary severity this protection suffice; but now, with such unprecedented weather, the fruit-blossoms have a burnt look. About 3.50 P.M. on Tuesday the sky suddenly became overcast, the wind rose, and darkness set in, and large flakes of snow fell quickly, covering the ground. The rapidity with which the thermometer fell was marvellous. The reading at 7.30 showed 16° of frost, which is as low a degree of cold as has been registered here this winter. On Wednesday morning it showed 18°. The barometer has remained nearly stationary during the week, the maximum being 29·70 inches. On Thursday it is steady at 29·58 inches, and snow is falling rapidly. The previous mildness caused vegetation to advance rapidly, and it will be very surprising if the fruit-blossom is not irreparably damaged. *H. T. Martin, Stoneleigh Abbey Gdns., Warwickshire.*

MARKET GARDENING IN THE CHANNEL ISLANDS: JERSEY.

(*Continued from p. 116.*)

Bagot Manor.—On Monday, September 12, I was taken to the establishments of Mrs. Bashford, one of the largest fruit-growing places in Jersey. The space covered with glass is very great, and the quantity of produce constantly sent away reaches very high figures. Tomato Bashford's A 1, a well-known variety grown here, invariably commands a higher figure than any other variety in the market. The situation seems to be adapted to the cultivation of the various subjects, and with care and sufficient labour bestowed good returns are reached. The produce consists almost entirely of Pears, Grapes, Tomatos, Kidney Beans, and Potatos, with an occasional crop of Cucumbers or Melons. Of these four last-named kinds, there were few signs just at the time, though the multitude of boxes of Seed Potatos standing in shady places out of doors, clearly showed that this branch of labour was shortly to be engaged in. The first three named, claimed daily attention.

The Tomatos were found in splendid condition, house following house, and such houses, too. In one block there were six houses, the smallest being 300 feet by 36 feet, increasing in size according to the amount of space at command, to 500 feet by 40 feet. The plants are set out, sometimes, across the houses; in others the rows run right through, from end to end, and so, looking at one end, avenues of plants reach the whole of the distance.

The morning of my visit 150 baskets had been sent away, each basket carrying 10 to 14 lb. of fruit. The gathering, sorting, and packing of this quantity of fruit is no small task; but no sooner has this lot been dispatched from one side of the establishment than gathering is taking place in the other part, and ere I left I saw another lot being packed, &c., so that the next morning another hundred baskets would be put on the steamer.

As may be supposed, the fruit, though coloured, is not dead ripe, and it bears the packing and transit well, so that a bruised fruit is scarcely ever found. Great care is bestowed on the packing of the baskets; the bottom has a layer of paper shavings, on which fruit is laid, then other layers of shavings and fruits, till the basket is brim full, the whole is then covered with several layers of tissue paper, laid all round the inside, and well secured by string, laced several times across the top; a label is attached, and the basket is ready for its journey of 200 or 300 miles. It is no unusual thing to have one or more baskets in each boat taken by the customs officials at Weymouth and Southampton and carefully examined, the basket untied, the top paper removed that the contents may be seen, the coverings then are replaced and tied tightly down again, and passed on with the others.

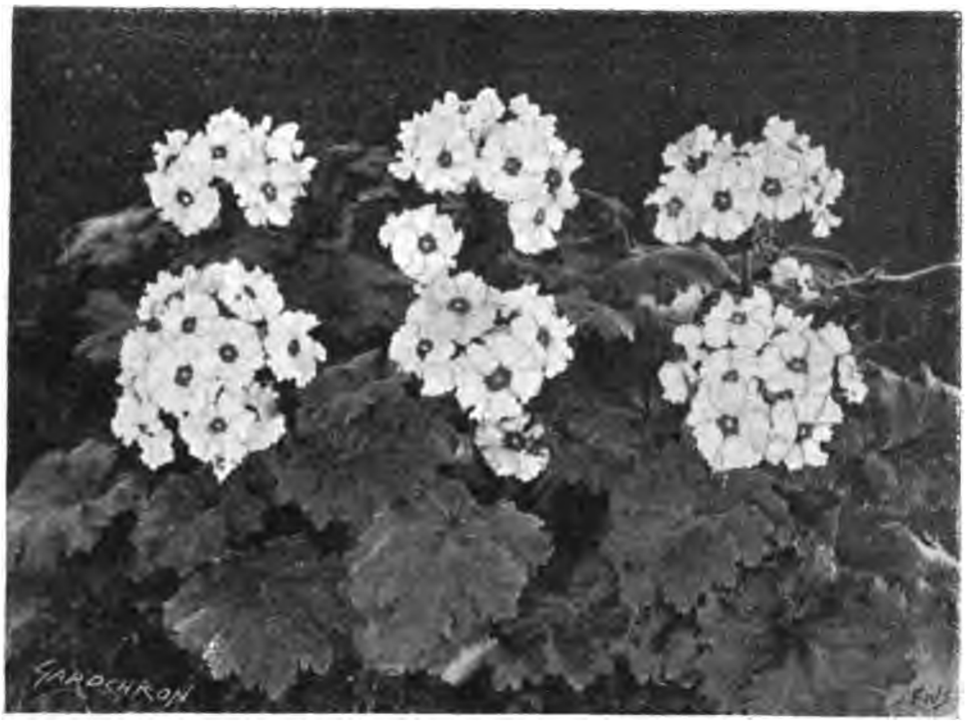


Fig. 78.—Chinese primrose "Her Majesty."

From a photograph from Messrs. H. Cannell & Sons. See article in our last issue, p. 179.

As soon as the Tomatos are finished, the borders in the houses are prepared for planting Ashleaf Potatos, the planting of which takes place in November. This crop comes quickly forward, and as soon as the tubers are ready they are dug up, packed, and sent away, the many persons now engaged in this business causing the scenes at the landing-stages to be unusually lively. During the season, from April to July, when those outside follow so quickly the crop from the houses, the harbour of St. Helier is full of life and bustle, the whole of the quays being occupied with vessels, often berthed two or three deep, taking their freights on board. The Potatos, packed in barrels and basket hampers, are brought down to the steamers in the farmers' vans, and it is not an uncommon sight to witness a procession of these vans a mile in length awaiting their turn to unload.

And now we look in at some of the vineries; here is a house devoted entirely to Muscats, from which no less than 5 tons have been gathered and disposed of. Some 11,000 bunches had been cut, and as this variety always commands the highest price, the value of such a crop may be readily grasped. These Vines are twelve years old, in good heart, with canes and buds stout and plump, the roots being inside and outside. As may be imagined, a great deal of labour is bestowed on such a house, besides which, some 30 tons of farmyard-manure are used as a top-dressing inside, and considerable quantities on the outside border also. This inside mulching forms but a slight covering, and superphosphate of lime, guano, and other manures, are freely used. It is surprising to see the number of bags of these manures in many of the sheds, the agents for these essentials, will, I doubt not, find in the islands a good outlet for much of their goods. Another house of Black Hamburgh Grapes, 450 feet by 36 feet, was seen; and then we had a look inside a house known by the "Three 7's," this being just 777 feet long, in which the first crop to be taken was to be Potatos planted in November. As soon as this crop is lifted, say in April and May, Sutton's Climbing and Canadian Wonder Kidney Beans are sown, and when these have produced their crop, Tomatos are planted; thus, three good crops are secured in one year. A houseful of Gros Colmar Grapes was just in the colouring stage.

And now, as one hive of industry is passed for another, Pear-trees came constantly in view; in fact, almost every available spot is occupied by them. The wall-trees were a wonderful sight; one wall being 1200 feet long, and almost the entire surface is covered with trees of Doyenné du Comice, Beurré Clairgeau, Uvedale St. Germains, EasterBeurré, &c. The first-named variety occupies the largest amount of space, and the fruit would weigh from 1 lb. to 1¼ lb. each. Many of the finest fruits for safety's sake were covered with muslin bags. Trees on walls of Louise Bonne of Jersey and Winter Nelis were also carrying a fine crop, but these varieties are less grown on the island. The trees were pictures of good culture. There was a large number of pyramidal trees 5 to 10 feet, the lower lateral shoots removed, those at the upper part alone remaining, and the fruit on these trees was in grand form, abundant and large. These consisted of Williams' Bon Chrétien and Pitmaston Duchess varieties, that exist in great numbers of fruiting trees, the trees themselves not being for sale. The fruit was putting on the last patches and streaks of colour, so indicative of thorough maturity. Four tons of Williams' Bonne Chrétien had already been gathered and sent off, and daily gatherings were taking place. To go over these large quarters examining the whole, picking for to-day, and mentally noting those ready for the morrow, is a piece of work needing experience, diligence, and much practice. We came across large breadths of Doyenné du Comice and Williams', each tree a specimen, from which many fruits had been plucked, and a fair crop still hanging. Of "Williams," some 30 tons were gathered altogether, large fruit, regular in size, and of excellent flavour. The top-dressing afforded these trees is a special feature. More Chaumontels, which I was informed was not quite so large as in some former years; Catillac, Van Mons Léon le Clerc, and one or two others; the three varieties, Williams' Bonne Chrétien, Pitmaston Duchesse, and Doyenné du Comice, are those mostly depended upon. Doubtless soil and climate have much to do with the production of such fine fruit; but skill counts for much, and here it is exhibited in a high degree. A few varieties only are cultivated, viz., those which crop well in the generality of years, and travel 200 or miles away without loss or injury.

My guide was an intelligent native, whose years of service numbered about thirty. He alluded to his successes modestly, and to his disappointments with but a word, always cheery, and always anticipating better things next year; it was a pleasure to me to have met so sanguine a man. It was anticipated that ere this season closed 60 tons of Pears would be gathered, a ready market awaiting the fruit. How trying and hazardous the business is may be gathered from the fact that in one year 16 tons of fruit were gathered from one part of the grounds, and the year following but 16 cwt. were secured; so that disaster sometimes comes even to this sunny isle. It would need almost as much labour to attend to the trees when the hundredweights were gathered as when tons rewarded the owner. My notes still run on walls covered with fruit-trees, quarters of "Williams," Doyenné, and Pitmaston Duchess, grand fruits, heavy crops, thick mulching, free manurings, but I forbear. I was much interested, highly pleased, and now acknowledge my sincere thanks to my guides, both lady and manager. *From our Special Correspondent.*

(To be continued.)

THE MARÉCHAL NIEL ROSE.

A good deal may doubtless be done in the future as in the past to improve the health and extend the life of individual plants of this best and most fragrant of all golden Roses, through the mating of it with more suitable stocks, as so often suggested by different growers, and again, by "A. D.," and the Editor on p. 57. But after many years' experience, I much doubt if any mere question of mechanical mating or uniformity of growths between scion and stock will entirely cure the gout, warts, or wens which so often wreck and ruin its health, beauty, and life. Congruous mating of stocks with scions may modify this innate tendency—hardly cure it. This needs no further confirmation than the fact that the striking protuberances are by no means unknown on Maréchal Niel Roses on their own roots. The gout, or whatever else we may call it, lies deeper in the constitution than mere accidental mistakes of mating can account for. Its outbreak and development are more like a veritable and active disease in itself than any mere block or derangement of circulation through the vessels of this particular Rose.

Further, if this is the sole or chief reason for the gout, warts, or wens in this Rose, how is it that the disease is wholly confined to this variety, seeing that the faulty mating scion and stocks is one of the most common faults of cultivation. [We have remarked the same thing in Rose Mrs. Bosanquet. ED.] Not, however, that I would discourage the most skilful mating between scions and stock. On the contrary, I have tried almost all possible stocks, and not a few that might have seemed impossible. The stronger Teas, such as Homère, Gloire de Dijon, Marie Henriette, proved good stocks, though they did not wholly cure the gout out-of-doors nor under glass. It may also be added that standard Dog-rose stock about 3 feet high, grown for late autumn bloom on a north-east border showed little or no gout, and were invaluable for furnishing good supplies of golden Roses through August, September, October, and in mild winters well through November.

But so far as mastering or reducing this troublesome disease was concerned, my best stock was the yellow Banksian Rose. Those familiar with the two Roses will at once see that the roots or stems of the yellow Banksian Rose could hardly overfeed the Maréchal Niel.

Be that as it may, too exclusive attention has probably been concentrated on mere over-feeding, or irregular distribution of food supplies. Nor must it be too hastily assumed that any Banksian Rose will form an equally good stock for the Maréchal Niel. On the contrary, the white is not equal to the yellow, and the large white or Fortunei, which I have always held to be a true Banksian Rose spoilt, is the worst stock of the three Banksians. I do not advocate the yellow Banksian as a perfect cure for the "gout" among Maréchal Niel Roses, but the nearest to a cure we have yet attained. *D. T. Fish.*

MARKET GARDENING UNDER GLASS.

FRUITS.—Vines and Peaches in their various stages of growth require prompt and frequent attention—in the way of disbudding and training of the shoots retained for furnishing the trellis with bearing wood for another year. In these days of express growing, it does not take long to fill a vinery or peach-house with bearing Vines and trees treated on the extension system, that is, by allowing both Vines and Peach trees to make a free extended growth, simply removing superfluous and extra strong growths in due time in the case of Peach and Nectarine trees planted last and the previous autumn.

Young Vines which have been planted during the present month with the intention of securing fruiting Vines as soon as possible, should be given a high and uniformly moist atmosphere until the Vines have reached the top wire of the trellis, when a more airy and dry atmosphere will be beneficial in order to ripen the wood properly. Meantime, lateral growths should be kept hard pinched to one joint from the main rod, stopping the latter about three feet from the bottom wire, and pinching out the young growths resulting from this stopping in the axil of the top leaf. This will cause the bud or eye (which would otherwise remain dormant until another year) to push into growth. The temporary check thus given to the terminal growth causes that below to thicken, and the eyes in the axils of individual leaves to become plump. The operation being repeated two or three times during the period of active growth, good fruiting-rods and eyes of uniform thickness and plumpness will be secured for next year. With regard to the cropping of established Vines, the length and strength of the individual rods should determine the number of bunches that should be retained on each Vine for a crop. Indeed, so long as the Vines are in robust health and are generously treated by giving good top-dressings of some reliable artificial manure before applying water at the roots, it is surprising what immense crops such Vines are capable of ripening, at the same time making robust growth. However, one bunch may be left on each shoot with perfect safety, assuming that only one lateral was left to each spur at the time of disbudding.

The same remarks apply to the cropping of Peach and Nectarine trees. Where the trees are in the best possible condition, the fruit may be thinned out from six to eight inches on the tree as soon as a good set has been secured; and at this distance the fruits will come pretty close to each other by the time they are ripe, and reach top prices in the market notwithstanding.

FRENCH BEANS.

Remunerative crops of French Beans may be grown in the Vine borders without interfering with the welfare of the Vines in any way; the warm moist atmosphere being very suitable to them.

TOMATOS.

Where Tomatos are grown in the same house with Vines, the latter will take about three years to become fully established; the houses, being treated expressly for the Tomato, the Vines make a slow but sturdy growth in the dry airy atmosphere necessarily observed. *H. W. Ward.*

NOTICES OF BOOKS.

THE CULTURE OF THE CHRYSANTHEMUM.

By W. Wells.

THE handy little cloth-covered manual bearing the above title purports to be a new and revised edition of a former issue; but it is only fair to the author to say it is almost an entirely new publication, for it seems to have been in a great part re-written, enlarged, and more fully illustrated than its predecessor.

As a grower of big exhibition blooms, the author is certainly well qualified to speak, and his compendium now before us seems to cover the whole range of Chrysanthemum culture in all its phases. As instances of which, the titles of only a few of the chapters must suffice, viz., Stopping, and its Object; Early-flowering Chrysanthemums; Housing the Plants; Staging Flowers; Chrysanthemums for Market; Soil for Potting; Cutbacks; Insect-pests and Diseases; Dressing Blooms, &c. Some lists of good incurveds, Japanese, and novelties, are given, which may be useful to many readers, and the lists are rendered valuable by the addition of cultural information as to rooting, stopping, number of shoots, buds to be taken, and feeding. Altogether, Mr. Wells' new contribution to the bibliography of the popular autumn flower is worthy of perusal by those interested in the subject.

THE PRINCIPLES OF AGRICULTURE. A Text-book for Schools and Rural Societies. Edited by L. H. Bailey (New York and London: Macmillans; pp. viii. to 300).

Agriculture, we are told in the preface to this useful little book, is a business, not a science. "But at every point a knowledge of science aids the business. It is on the science side that the experimenter is able to help the farmer. On the business side the farmer must rely upon himself, for the person who is not a good business man cannot be a good farmer, however much he may know of science."

This remark is as applicable to horticulture as it is to agriculture; indeed the whole book, barring the section devoted to animals, is as suitable for the gardener as it is for the farmer. The subject is treated with some originality, as is shown by a statement in the preface to the effect that "the best part of the book is the table of contents." In so far as this shows an orderly, logical presentation of the facts, this remark is true; but, nevertheless, we think the best of all exercises for the student is not to trust to someone else's summary or table of contents, but to make the "analysis" for himself. Under the heading of The Soil, the reader is introduced to the contents of the soil, its texture, moisture, tillage, and enrichment. These chapters are written by different persons attached to Cornell University.

The second part of the volume is devoted to the plant and the crops, including the relation of the plant to its surroundings, how the plant lives, how it is propagated. the preparation of the land for seed, the subsequent care of the plant, pruning, training, the management of pasture lands. The remainder of the volume is devoted to the animal life on the farm. The book is clearly written, and well adapted for its purpose.

THE APIARY.

Avoiding Pollen in Sections.—With but few exceptions, pollen in sections has caused me some loss each season, and to a less extent sections containing honey imperfectly fastened also, but never before anything like this. A year earlier, under the same management, there was practically no loss from either cause. The season might, therefore, in some sense, be accounted to blame, but in order to make a success of the business at present, one must be able and understand how to meet the conditions of different seasons, and with such knowledge I have no doubt the loss might have been avoided. Admitting that I might not be able to entirely avoid it if the same conditions were to occur again this season, yet I consider what I learned in regard to the matter was of more benefit to me than what was lost, for I am a young man yet, and expect to follow bee-keeping as a business in the future. I will first say that pollen in this, my immediate locality, is very abundant through the entire season, but as this is used mainly in brood-rearing, the natural instinct of bees causes them, when conditions are favourable, to store it in the brood-chamber, where it will be easily accessible for this purpose. But the plan I follow with the swarms, either natural or artificial, is to hive them in a hive with frames containing "starters" only, when, if the supers from the parent hives (in which work has already commenced) are put in a day or two, work will be resumed in them at once, and a good queen will usually lay in a large part of the comb below as fast as it is built, so that most of the honey brought in is necessarily for some time stored in the sections. I do not believe there is any method by which as much honey can be secured in sections, and in a good season, or during a good flow; a swarm when first hived will not bring in much pollen for a few days. Last year the flow, except during the first few days, was very scanty and irregular, and as it was those swarms treated as described that put pollen in the sections; it will be seen that this method should not be practised during a poor flow in a locality where pollen is abundant, for when they cannot secure honey they will carry in an excessive amount of pollen, and must of necessity store it in the sections. Now, I have not much doubt that to give one or two frames in each hive containing drawn comb, then waiting until considerable comb was built in them before putting on the sections, would overcome the difficulty, or if no frames of drawn-out combs were on hand, a like number filled with foundation would probably prove effective. There is so much pollen here that colonies that did not swarm would ofttimes carry it into the sections, but years ago I accidentally learned how to overcome this almost entirely by changing the places of combs in the hive. This was done to discourage swarming. My practice is, at the approach of the swarming season, to replace the two outside combs with those that contain the most sealed brood, the two from the outside which usually contain a large proportion of what pollen there is in the hive, are then placed in the centre. If done at the right time this has a tendency to check swarming, and I soon

noticed sections over colonies so treated hardly ever contained any pollen. Such an abundance of pollen right in the centre of the brood-nest may possibly act as a check to their gathering much more for a time. However this may be, there would soon be plenty of room for them to store a large amount again in the last two outside combs. As to sections containing honey but slightly fastened to the wood, I believe there are means by which this can be largely avoided, no matter what the character of the flow is, and even if only small starters are used. But as this article is already so long, I will have to wait to explain my experiments in regard to this matter until some other time. *By Expert.*

SOCIETIES.

ROYAL HORTICULTURAL.

March 28.—The usual fortnightly meeting of the committees of this Society was held at the Drill Hall, Westminster, on Tuesday last, when, happily, the conditions of the weather were exactly opposite to those that prevailed a fortnight ago. But the display was not so large as then, and this may be due to two causes—mistrust in the weather, encouraged by recent experience; and to the near approach of Eastertide. Yet the show was a very pretty one, and the Hall was fairly well furnished with exhibits, notwithstanding that the work which devolved upon the various committees was unusually light. The Fruit and Vegetable Committee, for instance, made one Award only, and this to a variety of Pear named Winter Orange. Those who have not already cultivated this Pear are recommended to try it, as the fruits will stew well.

The Floral Committee had many very charming groups to inspect, some of which illustrated the beauty of choice varieties of flowering trees and shrubs; the extraordinary floral wealth of the Azaleas mollis and sinensis; the delicious perfume of the Canterbury and other Roses; the remarkable attractiveness of the Boronias when well cultivated; and lastly, the diversity obtainable in well-known species of Ferns. The Floral Committee recommended a First-class Certificate to Erica propendens, and an Award of Merit to Azaleas mollis × sinensis "Betsy de Bruin."

Messrs. Sander's perennial exhibit of the new Acalyphas, hispida, and Godseffiana, was conspicuous on this occasion.

The Narcissus Committee recommended the Award of a First-class Certificate to a fine Trumpet Daffodil named King Alfred.

In the afternoon the Rev. Professor Henslow delivered a lecture upon some of the interesting plants at the exhibition.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. Owen Thomas, H. B May, R. Dean, J. H. Fitt, Wm. Howe, C. J. Salter, Geo. Gordon, E. H. Jenkins, J. D. Pawle, C. R. Fielder, Chas. E. Shea, J. W. Barr, Herbert J. Cutbush, Edwin Beckett, E. T. Cook, H. J. Jones, Harry Turner, R. Wilson Ker, George Paul, John Jennings and H. Selfe-Leonard.

A very charming display of spring flowering species of trees and shrubs in pots was made by Messrs. W. Paul & Son, Waltham Cross Nurseries, Herts. Single and double flowered varieties of the Peach, from palest pink to deepest rose colour, gave colour to the group, and freely-flowered plants of Cytisus præcox (purgans × albus) with its creamy wreaths, Prunus sinensis, fl. pl., Pyrus floribunda Scheideckeri, and others, were equally attractive, as was the doubled-flowered French Cherry, with beautiful white globular flowers. Choisya ternata, Cerasus Fortunei, Deutzia parviflora, Exochorda grandiflora were also noticed among these very valuable plants for pleasure-ground ornamentation. The purity of the flowers of Magnolia stellata contrasted greatly with the rich and warm colours of several new varieties of the Canna (Silver Flora Medal).

A mass of the most delicate shade of pink colour was presented by an exhibit of Cerasus pseudo-cerasus from Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea. About a score of these plants in pots were very pretty. The flowers are double or semi-double, about 1½ inch across, opening deep pink, and fading to white. Messrs. Veitch & Sons also showed a few abundantly-flowered plants of the feathery-white Chionanthus virginicus, Loropetalum chinense, and a pretty variety of Azalea mollis named albicans. Also some very pretty plants of Hippeastrum, the best being Adrastes, Phelma, Runcina, and Hecla. A seedling plant was shown with seven strong spikes and thirty-nine flowers and buds (cultural commendation). Some well-flowered plants of Dimorphotheca Eckloni were noticed.

FERNS.

Mr. H. B. May, Dyson's Lane Nurseries, Upper Edmonton, showed a group upon the floor, composed of Blechnums and Lomarias, there being as many as forty forms represented. The individual plants were splendidly cultivated ones, and the group served to illustrate the characteristics of the varieties. L. gibba was represented by a fine plant, and a specimen of L. attenuata that had made a little stem was very pretty. Beside the more decorative varieties, the group included the diminutive L. alpina, and the New Zealand species, L. fluviatilis (Silver-gilt Banksian Medal).

Ferns were again shown in considerable quantity by Messrs. J. Hill & Son, Lower Edmonton. Some of the Gymnogrammas, as G. peruviana, silver-coloured; G. chrysophylla, and G. argyrophylla, were conspicuous. Asplenium Hilli and A. Belangeri are both useful Ferns. Pteris Wimsetti was present in a large plant, and the distinct P. palmata as smaller examples. Doodia cordata, Nephrodium lepidum, Cyathea insignis, and many choice varieties of Adiantum.

AZALEAS.

Messrs. R. & G. Cuthbert, of Southgate, Middlesex, again contributed the gayest group in the show. These Azalea mollis and sinensis hybrids are wonderful in the variety of colour-tints they afford, and fortunately they possess the characteristics of all Azaleas, viz., that of an abundantly free-flowering habit. The deepest coloured one shown on Tuesday last was a variety of A. mollis named Alphonse Lavallée, a warm red variety with shades of orange, that is an undoubted favourite. A. mollis × sinensis Hortulanus Witte is a very distinct variety, with yellow flowers. J. J. de Vink, Emilie Liebig, Madame Anthony Koster, Geo. Cuthbert, Hugo Koster, Dr. Reichenbach, &c., all show the markings upon the upper petal conspicuously. W. E. Gladstone is a magnificent variety, with warm orange-yellow flowers in grand trusses—a capital companion for the very popular Anthony Koster (Silver Banksian Medal).

ROSES.

Mr. Mount's Roses, from Canterbury, included magnificent blooms of Mrs Sharman Crawford, Catherine Mermet, Captain Hayward, Anna Olivier, Bridesmaid, The Bride, and many others, both as blooms upon the ordinary exhibition stands, and as glorious sprays clad with the healthiest of summer-like foliage (Silver Flora Medal).

Mr. W. Rumsey, Joynings Road Nurseries, Waltham Cross, made a very large exhibit of Roses, that included a large number of varieties. For the present date of the season these were very good. The variety Mrs. Rumsey evidently forces with satisfactory results (Silver Banksian Medal).

A pretty white-flowered Polyantha Rose named Thalia was shown by Messrs. Frank Cant & Co., Braiswick Nursery, Colchester. This perfectly pure-white Polyantha Rose will be much prized, the sprays being charming when cut. Messrs. Frank Cant & Co. had also about four dozen blooms of Roses in variety, all of them very fine in colour.

MISCELLANEOUS.

Boronia heterophylla, B. serrulata, and B. megastigma were shown by Messrs. W. Balchin & Sons, Hassocks Nurseries, Hassocks, Sussex. This extraordinary group of plants, of varieties usually rather difficult of cultivation in gardens, was a great source of attraction. B. serrulata especially, was magnificent, perhaps finer than we have hitherto observed them—even from Hassocks (Silver Flora Medal).

Mr. Jno. Russell, Richmond Nurseries, Surrey, showed about a dozen plants of Dracæna Russelli, a narrow-leaved variety with dull red recurving foliage.

From Mr. John Russell, were also shown plants of Viburnum macrocephalum, a variety with large trusses of white flowers, that somewhat resemble those of Hydrangea Hortensia. It is one of the best Viburnums.

An unusual exhibit from amateurs was that of a collection of hardy and alpine plants shown by Purnell Parnell, Esq., Woodlands, Streatham. A few Primulas, including P. denticulata, P. verticillata were in flower, and the blue Primroses, Irises Persica, &c., but there were also numerous Sempervivums, &c. (Silver Flora Medal).

Cliveias were shown by Messrs. B. S. Williams & Son, Upper Holloway, London, N. Some very large plants were included in this exhibit, and the best varieties were Marie Reimer, Surprise, Prince of Orange, and Scarlet Gem (Vote of Thanks).

AWARDS.

Azalea mollis × sinensis Betsy de Bruin.—An orange-yellow flowered variety, the upper petal marked with red or crimson. The blooms are of moderate size, and form a nice, compact truss (Award of Merit), from Messrs. R. & G. Cuthbert, Southgate.

Erica propendens.—A species of Heath that has been in cultivation for a number of years, and was figured in *Bot. Mag.*, t. 2140, from specimens cultivated in the nurseries of Messrs. Loddiges & Sons. The flowers are rather small, terminal, pendent, and umbellate. In colour, a shade of mauve-pink, though they have been described as purple, or deep red. The leaves are very short, ciliate, and are produced four in a whorl. The plant rarely exceeds 1 foot in height. Those shown by Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea, were exceptionally well-flowered, and were greatly admired (First-class Certificate).

Narcissus Committee.

Present: Revs. E. S. Bourne (Chairman), G. H. Engleheart, Messrs. C. R. Scrase-Dickens (Secretary), J. Walker, A. Kingsmill, R. Sydenham, P. R. Barr, Miss Willmott, and others.

Scarcely any flowers from the open ground were in evidence, the past week's severe weather having emphasized the general backwardness of the spring as regards Narcissi.

Mr. R. O. Backhouse, Sutton Court, Hereford, received the committee's thanks for an interesting hybrid between N. cyclamineus and N. obvallaris.

The Rev. G. H. Engleheart was thanked for a gathering of good hardy hybrids between N. Tazetta and N. poeticus, and also showed some attractive seedling Trumpets.

Messrs. Barr & Sons were awarded a Silver Flora Medal for an exceedingly fine group of pot-Narcissi, the plants dwarf and profusely flowered, notably the new Ajax Victoria.

Messrs. T. S. Ware received a Vote of Thanks for a small stand of Narcissi in pots.

AWARDS.

Narcissus King Alfred.—A remarkably fine Ajax was sent from Mr. Kendall, Newton Poppleford, Ottery St. Mary, Devon. This flower, named King Alfred, appears to be the outcome of a cross between N. Emperor and maximus. The large bloom of rich uniform gold, and thick substance, recalls the features of both parents, as do the tall stems and stout glaucous foliage (First-class Certificate).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), R. Brooman-White, H. Ballantine, N. C. Cookson, A. H. Smee, J. Gabriel, A. Outram, H. J. Chapman, W. H. Young, F. J. Thorne, E. Hill, W. H. White, J. Jaques, H. T. Pitt, W. H. Protheroe, J. Colman, J. G. Fowler, F. Mason, T. B. Haywood, and S. Courtauld.

Orchids were much fewer than on the last two occasions. Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), staged a pretty group of excellently-grown rare specimens, for which a Silver Banksian Medal was awarded. The group contained Odontoglossum Halli, with sixteen flowers; two grand dark forms of O. triumphans, the new orange-red Epidendrum × xantho-radicans, Cattleya Lawrenceana, with sixteen flowers; C. × Lawre-Mossiæ; Cypripedium Stonei, with a fine spike; C. Rothschildianum, with two spikes of fine flowers, and others.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), staged a small group, including the handsome Odontoglossum × Wilckeanum "Primate," with a noble spike (Cultural Commendation); a singular hybrid of the O. × Andersonianum class, with canary-yellow flowers, named O. × flaveolum; O. × Humeanum fulvidum; varieties of O. × Andersonianum, Epidendrum Wallisii, Dendrobium × splendidissimum grandiflorum, and other Dendrobes; Oncidium sarcodes, &c., the centre being occupied by a splendid plant of the still rare Eulophiella Elisabethæ, with three fine spikes (Bronze Banksian Medal).

Messrs. Hugh Low & Co., Bush Hill Park, staged an effective group, in which were several remarkable varieties of Cattleya Trianæi, two white forms with pink tinge on the lip being exceptionally good. Also in the group were very fine Cypripedium Mastersianum, C. × T. W. Bond, C. × Smithii, C. × Winnianum, C. × Godseffianum, C. × Calypso, Dendrobium × Cheltenhamensis; some very handsome forms of Odontoglossum crispum, &c.

Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray), showed four plants of his Dendrobium × Cybele, Oakwood var., nobile Burfordiense × Findlayanum, all dissimilar. The nearest of the type was white tipped with rose, and with chocolate purple eye. No. 1 had larger flowers than the type, the white flowers tipped with carmine-rose, the disc and the lip orange with distinct maroon eye. No. 2 was similar, but with the dark eye nearly suppressed; and No. 3 was in colour like the light-coloured original form, but much larger.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed Odontoglossum × Andersonianum splendidly grown, and with three flower-spikes; a very handsome white variety of O. crispum, and O. × mulus, Crawshay's variety, with yellow flowers, heavily blotched with chocolate-brown; the lip nearly white.

Messrs. Linden, l'Horticulture Internationale, Parc Leopold, Brussels, showed Odontoglossum Wilckeanum tigrinum, a very handsomely-marked variety; O. × cirrho-Halli, and Cypripedium × Paulii superbum (Boxalli × Chantini superbum).

T. B. Haywood, Esq., Woodhatch Lodge, Reigate (gr., Mr. Salter), showed several forms of his fine strain of Dendrobium × splendidissimum.

W. Thompson, Esq., Walton Grange, Stone, Stafford (gr., Mr. Stevens), showed Odontoglossum × Wilckeanum Waltonense, a very handsome yellow form, richly blotched with purplish-brown; O. Halli nigrum, with handsome flowers, in which the greater part of the sepals and petals are covered with nearly black markings, the lip being large and white, with but two or three small brown spots.

Frau Ida Brandt, Zurich, sent Cœlogyne Sanderæ, a pretty species of the C. Cumingi class; Phalænopsis Aphrodite, and the rare Oncidium Warscewiczii.

W. C. Walker, Esq., Winchmore Hill (gr., Mr. Geo. Cragg), sent Eriopsis rutidobulbum, with three fine spikes, and a good Cypripedium hirsutissimum.

E. de Q. Quincey, Esq., Chislehurst (gr., Mr. G. B. Lees), showed a fine form of Cattleya Trianæi.

Thos. Statter, Esq., Whitefield, Manchester (gr., Mr. Johnson), showed Cypripedium insigne Statteræ, one of the finest of the C. i. Sanderæ class, with rich dark yellow, unspotted flowers, with fine white upper portion to the dorsal sepal, the darkest of the yellow C. insigne.

Sir Wm. Marriott, Down House, Blandford (gr., Mr. Denny), showed a handsome form of Lælio-Cattleya × Latona.

AWARDS.

Lælio-Cattleya × Myra Etoile d'Or (C. Trianæi var. × L. flava), from M. Jules Hye Leysen, Ghent (gr., Mr. Coen), a very handsome clear yellow flower, of similar habit and general appearance to L.-C. × Ernesti "Princess Olga," illustrated in the present volume of the *Gardeners' Chronicle*, p. 149 (First-class Certificate).

Odontoglossum × *excellens var. nobilior*, from M. Jules Hye Leysen, Ghent. A fine form, with bright yellow flowers, handsomely blotched with red-brown. Lip white, with yellow crest, and some red-brown spots. The spike bore fourteen fine flowers (Award of Merit).

Cattleya Trianæi Amesiana, from Messrs. Hugh Low & Co., Bush Hill Park. A very beautiful pure white variety, the broad labellum being of a clear rose-pink in the front portion (Award of Merit).

Dendrobium × *Euterpe* (Nobile × Wardianum) from Sir Trevor Lawrence, Bart. Flowers of the same white and rose-purple shades as D. Wardianum, but changed in form in the direction of D. nobile. The finely-grown plant bore a flowering growth between three and four feet in height (Award of Merit).

Dendrobium canaliculatum from J. Sparkes, Esq., Heathside, Ewhurst (gr., Mr. Smith). A fine plant with three spikes of white and rose-coloured flowers was shown (Botanical Certificate).

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq. (Chairman); and Messrs. W. Wilks, Jos. Cheal, Jas. H. Veitch, A. F. Barron, A. H. Pearson, Alex. Dean, S. Mortimer, J. W. Bates, Geo. Wythes, H. Balderson, F. Q. Lane, Jas. Smith, J. Willard, and Robt. Fife.

Messrs. Walker Bros., 36, Basinghall Street, E.C., showed a few black Grapes that had been imported from S. Africa. These were satisfactory, though not perfectly ripe.

A seedling Apple named Drought's Favourite was shown by Messrs. R. Hartland & Son, Lough Nurseries, Cork. It may be a good Apple, but was a little past its best. Mr. A. J. Thomas, Rodmersham, Sittingbourne, showed an Apple named Diamond Jubilee.

From the Royal Horticultural Society's Gardens at Chiswick were shown twenty-eight varieties of Onions, six or eight bulbs of each. Mr. Wright reported that such bulbs that had not been transplanted kept only until the end of February. Those shown were nice firm, but small bulbs, that would seemingly keep for some time to come.

AWARDS.

Pear Winter Orange.—The stewing Pear, Winter Orange, was again shown by Mr. R. C. Notcutt, Woodbridge, Suffolk. It has been grown in certain localities for a number of years, but at the same time is not generally known. It is of medium size, short, and but little pyriform in shape. The eye is an open one, and is situate in a shallow basin. The variety is a first-class stewing Pear (Award of Merit).

TORQUAY & DISTRICT GARDENERS' ASSOCIATION.

March 22.—Individual competitors were not so numerous as could be wished, and the competition in the open classes was therefore somewhat restricted; but there was no lack of merit. Table decorations again formed an attractive feature, but, as usual, the awards did not give undivided satisfaction.

Azaleas seemed to be everywhere, all covered with bloom. Narcissi, Cyclamens, Tulips, Cinerarias, Hyacinths, Freesias, Primulas, Carnations, were all splendidly represented. A novelty for spring shows were the fine collections of vegetables, New Potatos, Runner Beans, and such like. Among the honorary exhibitors, Mr. J. Snelgrove, was again to the front with a charming collection of plants and blooms. Flowering shrubs at the back towered over rare Orchids, and all the striking colours of the many spring flowers. Miss Lavers, in addition to Orchids, sent a number of Apples and Pears. Curtis, Sanford & Co. had Roses on their stand from the Devon Rosary; W. B. Smale's collection was hardly so striking as usual, but it included a wide variety of choice spring blooms. From Messrs. Veitch, of Exeter, came the usual artistic display, including many of the latest novelties; Burridge & Son, W. Allward, Horn & Sons, T. S. Ware of Tottenham, and J. Heath (Violets and Polyanthus) added much to the attractiveness of the exhibition by their displays. Mrs. Wilson had an interesting exhibit in the shape of Papyrus antiquorum. Included in the South Devon fruit-farm collection were Daffodils, New Violets, and Roses grown under Vines. *Western Morning News.*

MANCHESTER AND NORTH OF ENGLAND ORCHID.

March 23.—On the occasion of the meeting held at the Manchester Coal Exchange on the above date, there were present Messrs. G. Shorland Ball (in the chair), G. W. Law-Schofield, John Leemann, J. Cypher, R. Johnson, and T. Mills (Hon. Sec.).

G. Shorland Ball, Esq., Wilmslow, showed Dendrobium rubens var. grandiflorum (First-class Certificate), D. nobile Amesiæ (First-class Certificate), D. Schneiderianum (First-class Certificate), D. splendidissimum Leeanum (Award of Merit), D. Sybil (First-class Certificate), D. Juno (First-class Certificate), Cœlogyne cristata alba (First-class Certificate), and Odontoglossum crispum (Award of Merit).

Thos. Statter, Esq., Whitefield, showed Dendrobium splendidissimum illustre (First-class Certificate), D. s., Thompson's var. (First-class Certificate), D. s. Leeanum (Award of Merit), D. Rolfe (Award of Merit), D. Apollo, D. Sybil (First-class Certificate), D. nobile Storei, D. Juno (First-class Certificate), D. Clio (First-class Certificate), D. Venus, and Cypripedium insigne Luciana (First-class Certificate).

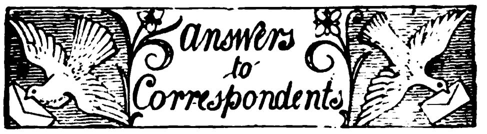
John Leemann, Esq., West Bank House, Heaton Mersey, showed Odontoglossum Andersonianum, O. crispum Mrs. John Leemann (Award of Merit), Cattleya Trianæi var. delicata (Award of Merit), C. Louis Chaton, Dendrobium nobile Amesiæ (First-class Certificate), D. Ainsworthi intertextum, D. Apollo, Cypripedium Germinyanum violaceum, and C. Dayanum; also a group, for which he was awarded a Silver Medal.

D. P. Rappart, Esq., Liscard, showed Dendrobium Venus selwoodense (First-class Certificate).

Messrs. Linden & Co., Brussels, showed Odontoglossum intermedium Queen Victoria (Award of Merit), O. cirrosum Halli (Award of Merit), Mesospinidium vulcanicum grandiflorum, Odontoglossum sceptrum superbum, O. luteo-purpureum splendens (Award of Merit), O. Wilckeanum tigrinum (First-class Certificate), O. hybridum Golden Queen (Award of Merit), O. Ruckeri tigrinum (First-class Certificate), O. Andersoni picturatum (Award of Merit).

Obituary.

Geo. Buchanan Wollaston.—On the 26th inst., at Bishops Well, Chislehurst, the death of Mr. George Buchanan Wollaston has deprived the lovers of British Ferns of one of the few remaining specialists who have done so much by assiduous hunting and careful study to form the grand collections now existing. For some time his advanced age (eighty-four) and failing health have removed him from among the active members of the cult, but his work in the past has stamped him as first among the connoisseurs and standard authorities, while his special finds among the shield Ferns have immortalised his memory. Nor did Ferns alone obtain his interest, for his garden was a marvellous museum of varietal forms of trees, shrubs, flowers, and even weeds. His generosity and kindliness endeared him to all who knew him.



Answers to Correspondents

Cattleyas and Dendrobiums Resting: *Veritas.* A simple method of telling when the resting season has arrived in the ordinary course, is to note when the last growth of all the plants of a species is completed, and no more young growth is coming from the base. Dendrobiums comprise both evergreen and deciduous species, the last-named giving an additional indication that the resting season has arrived by the withering of their leaves. Such species requires a perfectly dry and cool resting season. The Cattleyas and evergreen Dendrobiums, when at rest, also require a lower temperature than when growing, and a considerably reduced supply of water to the roots.

Cœlogyne cristata: *A Subscriber.* The shrivelling of the bulbs seems to indicate that the plant has lately been given an insufficient supply of water at the roots. From now onward, until the new growths are completed, a very liberal supply of rain-water should be given. Indeed, if in well-drained pot, it is scarcely possible to give too much.

Cucumbers Deformed, and Brown in Colour: *Two Blades.* The plants are probably a prey to eelworms at the roots, introduced with the soil. This is always to be feared where it is not the practice to keep loam, &c., in neat stacks with sides smooth, and kept free from all herbage for two years. Can you not send specimens of roots?

Donations.—F. Gibson, 3*s.*; and W. Gibbins, 1*s.* 6*d.*, sent in postal orders for insertion of Gardening Appointments. These sums have been forwarded to the Secretary of the Royal Gardeners' Orphan Fund, as we make no charge for these notices.

Names of Fruits: *J. Phillips.* Apple: Coe's Golden Drop.—*J. E.* 1, Bramley's Seedling; 2, not known; 3, Lane's Prince Albert; 4, Besspool?; 5, Redwinter Reinette; 6, Minchall Crab.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. H. Wilkes.* The Ivy is Emerald Gem, so far as can be ascertained from leaves only.—*J. D. Stow.* The raceme of flowers is Epidendrum Stamfordianum; the other small flower, so far as we can judge in its imperfect state, and without the pollinia, is Maxillaria crassifolia. The flowers are produced singly on the stems, but with several rising from the base of the growth. A portion of the growth and fresh flowers would render identification more certain.—*W. T.* Leucoium vernum.—*A. M.* 1, Leucostegia (Davallia immersa); 2, Davallia Tyermani; 3, Sanchezia nobilis; 4, Hoffmannia Ghiesbrechti; 5, Acalypha marginata; 6, Pellionea pulchra.—*J. Barnett.* Ornithogalum (Allium) neapolitanum.—*J. M. Lenton.* 1, Abutilon Sellowianum marmoratum; 2, Abutilon Darwini variegatum; 3, Saxifraga sarmentosa; 4, Nephrolepis tuberosa; 5, Selaginella Wildenovii; 6, Carex variegata.—*E. W.* A very fine Odontoglossum triumphans, both in form and colour. —*W. M.* The cut leaf is known in gardens as Aralia filicifolia; the other as Aralia Guilfoylei. The Camellia resembles "Marchioness of Exeter." *A. E. M.* The Fern seems to be the variety we figured as Adiantum t. Farleyense var. alcicorne; 2, Oplismenus Burmanii variegatus; 3, Begonia Ingrami. The Palm with flower is Chamærops humilis; 6, Dracæna, but impossible to say which from the specimen sent.

Orchid Leaves, Unhealthy: *Pest.* The surface is covered with a whitish mould, which you may destroy by using flowers-of-sulphur in a dry state, or sulphide of potassium, at the rate of half-an-ounce dissolved in 1 gallon of rain-water. Your method of cultivation leaves apparently something be desired.

Pinching the Points of the Side-shoots of Young Vines: *Killiecrankie.* The laterals that are intended to form the future fruiting-spurs, which should occur on the rods at 1¼ to 1½ foot apart, all others being rubbed off early, should be stopped at a distance from the rod of 1½ to 2 feet, accordingly as the space between the rods is small or great. If the laterals at the upper extremity of a cane are stronger than the rest, begin with these, and do not stop the leading point of the rod—at least not till growth is getting to an end. Having stopped a lateral once, stop the resulting shoot at one bud from the point of origin, and so on as long as growth continues, a moderate number of fully-developed leaves being of greater value than many small ones; moreover, crowding is averted.

Rose: *A. E. M.* The centre of the Rose has grown out as a shoot. It is not uncommon, and is due to something stimulating growth at a time when normally it should be at rest. Why it should have done so we cannot tell. It is not likely to repeat the performance.

Violets in Frames: *C. Brown.* We thank you for the kind expression of feeling towards us. The blooms were very fine indeed, and we still hope that when you can find the time to do so, you will describe your methods, which could not fail to be of use to the younger members of the craft.

Wireworms in Vine and Peach Borders: *Anxious.* To "clear" the borders is probably beyond possibility without inflicting injury on the plants, and perhaps killing them. They were, doubtless, introduced with the loam, and being feeders on the roots of grasses and herbage generally, there is the likelihood of their dying of starvation if no plants are grown on the border, and weeds are exterminated. You might take advantage of their liking for the roots of Lettuces, and try to trap them by sowing or planting a number of rows, pulling up the plants intact when ready for use, and burning the roots and soil attached. The Mustard plant, when sown on land infested with wireworm, is said to drive them away. Try it, for it will not impoverish the ground, and may do good.

Communications Received.—H. E., Mentone.—D. B. N.—J. B.—D. T. F.—E. J. H.—R. M. C. J.—R. Mason.—R. D.—D. T. F.—C. T. D.—H. E.—C. J. F.—C. W. D.—S. A.—R. P. B.—A. R.—A. T. (next week).

DIED.—On March 23, at the residence of her son James, Sarah, widow of Samuel Hudson, age 95 years.

(*For Markets and Weather, see p. x.*)

THE
Gardeners' Chronicle
No. 641.—SATURDAY, APRIL 8, 1899.

CROSS-BREEDING.

A PAPER by Messrs. Walter T. Swingle and Herbert J. Webber, on "Hybrids and their Utilisation in Plant Breeding," *Year-book of the Department of Agriculture for* 1897 (U.S.A.), furnishes a general summary of observations on the peculiarities of hybrid plants, and gives important suggestions for taking practical advantages of them.

After alluding to the fact that in consequence of the great diversity of climates and soils in the United States, numerous varieties suitable to each, respectively, must be raised, since a good vegetable or fruit in Florida may be quite unsuited for cultivation at New York—and in some degree the same rule would apply to the British Isles; the authors proceed to discuss what plants can be hybridised or crossed. Nothing but general rules can be at present held, as there is an extraordinary amount of "capriciousness," so to say, in plants, so that one can never foresee what plants can be hybridised, and what will refuse to be crossed with any advantage.

The first rule is, that the less there is of affinity the less chance there is of crossing, and by affinity is meant the points of agreement between two plants taken in their totality, so that the degree of probability of union decreases from races and varieties to species, genera and families, or natural orders.

As examples of capriciousness, it may be observed that while naturally self-fertilising plants produce a far greater abundance of seed in the wild state than plants with flowers especially adapted for inter-crossing, it may happen that a species is self-impotent, but quite fertile with another and nearly related species.

Again, though the species of the same genus can generally be hybridised, some refuse to be crossed. Thus, Nicotiana acuminata could not be crossed with any one of eight other species (Gaertner). Again, reciprocal crosses can generally be made; but while Mirabilis Jalapa × M. longifolia was fertile, the reverse cross proved to be sterile. Even very closely-related species may sometimes refuse absolutely to be crossed. Thus was it with Cucurbita Pepo and C. maxima (Bailey and Pammel).

On the contrary, Mr. Burbank raised a successful bigener between the Strawberry and Raspberry.

Of different families, Gladiolus blandus was crossed with a Hippeastrum, and yielded four plants; and Digitalis ambigua × a Gloxinia, bore several seeds.

As a practical result from usually self-sterile seedless plants, the fact may be mentioned that they often prove to be fertile when pollinated by other species; as in the case with some seedless Oranges, Pine-apples [Passion-flowers], &c.

Sterility may not be without its advantages, for besides giving rise to seedless fruits, the vegetative system may be greatly enhanced in various ways: in some, as Walnuts, supplying valuable timber; in others, useful herbage; or again, as stocks for grafting.

The characters of the hybrid are usually intermediate between those of the parents; but it is never absolutely so, as all degrees may appear between the one parent and the other. Thus, of Datura Metel × D. Meteloides, of the second generation, there were forty-two plants, of which twelve resembled the mother, two the father, and twenty-eight were intermediate in various degrees.

If the progeny resemble one or other of the parents very closely, or (to all appearances) entirely, they have been called "false hybrids." This was what M. Millardet found with regard to the results of crossing the European Strawberry, Fragaria vesca, with the American species. Some account of his experiments have already been given in the *Gardeners' Chronicle* (Nov. 10, 1894, p. 568).

A great difference exists between the first and later generations of hybrids, the rule being that second and subsequent ones are far more variable, and "the variability is the greater the more completely it was wanting in the first generation;" *i.e.*, the result of crossing more or less widely distant species.

The authors classify under six headings various hybrids according to their degrees of intermediate features as well as sterility, in the first generation and in others, concluding with "false hybrids."

They then discuss atavistic and new characters exhibited by hybrids. They mention a striking instance recorded by Saunders, who says:—"In a cross between Red Fife, male, and an Indian Wheat known as Spiti Valley, female, both beardless, several distinctly bearded sorts were produced in the second generation." As ancient Wheats, as the Egyptian, are bearded, such a result as the above appears to be an atavistic or reversionary character. With regard to new characters appearing, they give photographic illustrations of the two parents and the hybrid offspring of Raspberry × Blackberry. In none are the leaflets dissected, but a leaf of a subsequent hybrid illustrated is supra-decompound. Ten photographs of the canes of a second generation of the same give as many differences.

One section is devoted to graft hybrids, in which the following case is mentioned, besides the Rosa Devoniensis grafted on a Banksian Rose, described in *An. and Pl.*, &c., i. 396; *Gardeners' Chronicle*, July 21, 1860, p. 672. Flower-shoots of the tender Kohl-rabi were grafted on a hardy Cabbage. The seeds resulting from self-fertilisation yielded plants which had swollen stems useful for forage, were very hardy, and yielded from four to five times as much fodder as other sorts of Cabbages able to stand the same degree of cold. This result is very suggestive, and it is to be hoped more experiments will be tried in this direction.

With regard to some special features obtained by hybridisation, the authors observe that it often happens that the progeny of very different species are unusually vigorous. Mr. Burbidge records this fact with regard to Mr. Dominy's hybrid and bigeneric Orchids compared with the parent plants. As other examples, Burbank's hybrid between the English Walnut, Juglans regia, and J. californica, may be mentioned. "It possesses extraordinary vigour of growth, which may render it of exceptional value as a lumber and ornamental tree, the leaves being from two feet to a full yard in length. The wood is very compact, with a lustrous silky grain, taking a beautiful polish; the annual layers of growth being an inch or more in thickness, the effect is unique."

The Raspberry-blackberry hybrid, "Princess," produced by crossing the Western Dewberry (Rubus ursinus) with the Siberian Raspberry (R. cratægifolius) is also an interesting case. Burbank says of it:—"It is remarkable that the hybrid should ripen its fruit several weeks before either of its parents, and excel them much in productiveness and size of fruit, though retaining the general appearance and combined flavours of both."

The authors finally discuss the benefits of crossing in producing increased vigour and fertility as well as hardier sorts, and sorts suited for the warmer climates of the southern States. With reference to the last, they mention the result of crossing the Chinese Sand Pear (Pyrus sinensis) with the European Pear. "This cross has revolutionised Pear culture in the southern part of the U. S., having extended the range of profitable commercial Pears growing hundreds of miles southward. From Virginia and southward to the Orange region of Florida, these two varieties (the Kieffer and Le Conte) have monopolised the Pear-growers' attention; in fact, they have made the Southern Pear culture."

The paper concludes with remarks on breeding better stocks. Hybrids of unusual vigour, even though absolutely sterile, may prove of great value for stocks if they are capable of being propagated vegetatively, as for example, has proved to be successful with Vines on the Continent. *George Henslow.*

EUCALYPTI.

I HAVE been much interested in the many useful articles which are at the present season appearing in your columns relating to these most important trees. From a residence of some years in the Transvaal, where it is being extensively planted, I have had opportunities of observing its suitability as an exotic timber-tree there, and with your permission, perhaps a short statement of the results of these observations may not be unacceptable to your readers. Soon after the Boer occupation of the Transvaal, it would appear that they began to plant a few of these trees around their homesteads, no doubt their extreme rapidity of growth being the recommendation; the consequence has been, that now that gold-mining is the staple industry of the country, and as there is a great want of timber for mining purposes, many companies have turned their attention to tree-planting in order to supply this want, the result has been that pretty extensive plantations have been made in the neighbourhood of the great mining companies. Several of the principal of these plantations, in the neighbourhood of Johannesburg and Pretoria, I have had the privilege of examining. The "Bruamfontein Plantation," extending to about 1000 acres, also "Orange Grove," and "Boysum," all planted within the last twelve years, are to the eye of an English arborist marvels of success. Although only planted during the time stated, when I visited them two and a half years ago, the trees ran from 15 to 40 feet high, the older portions supplying good pit wood, girthing from 12 to 18 inches, and from 20 to 25 feet long; these were merely thinnings.

The predominant species planted was E. Globulus, the Blue-gum; E. viminalis, resinifera, robusta, and diversicolor have also been tried. However, the two varieties which appear to do best are Globulus and viminalis, each attaining great size in a few years. For hardiness I think viminalis is preferable, and from information I received its timber is tougher and more durable. The very limited experience on this point, however, may be misleading, as every one knows, though elasticity and durability of timber depends a very great deal upon the soil in which it is grown, the same variety grown under different conditions as to soil and situation may give very different results; one thing I specially observed, however, was that viminalis seemed to be much hardier than Globulus. In the winter of 1894 we had frequently from 15° to 20° of frost, the young shoots of Globulus were pretty severely cut, while viminalis growing beside it was not touched; robusta also appeared to enjoy immunity. The plantations referred to are all situated on elevations, varying from 4500 to 6000 feet above sea-level, and the temperature in winter is often as low as 10° F. The soil is generally a red loam, rather poor, very much impregnated with iron, except along the banks of streams and vlais or damp hollows, where the soil is darker and more alluvial; the whole, however, is more or less ferruginous, such being apparently thoroughly suited to the Eucalyptus. As an example of the enormous growth of this genus in the Transvaal, I may mention that on visiting Linhaard's Vlai, about 20 miles west of Johannesburg, my attention was drawn by the manager of the estate, Mr. Forbes, to a row of Eucalyptus on the boundary of the homestead, which he reported as being from 20 to 25 years old. I roughly measured two of the largest; one was 15 feet in circumference 5 feet from the ground, with a clear stem of about 55 feet without a branch; the full height of the tree would be about 80 feet; the other was 13 feet in girth, with a similar stem and height. Both seemed to be E. Globulus, but from the height of the branches it was difficult to identify them.

From these observations I hold a very strong opinion that the hardier varieties such as I have indicated might be planted with excellent results in several situations in the British Isles, such as in the south-west of England and the south and west of Ireland; and even in certain parts of the west of Scotland, I believe, gratifying results might be attained. One thing, however, must be kept in view—that they should not be planted in low sheltered localities, where they would be long in ripening the young shoots, or where there is a liability to hoar frosts. Comparatively high and exposed situations should always be selected. Again, I am convinced that they should not be used in mixed plantations, because by their rapidity of growth they would early overtop any other variety, and be therefore exposed to high winds, which would destroy the young upper shoots.

Before closing, I may just say that there are other trees grown in South Africa which I have an idea might be with advantage tried in certain situations in this country. I refer to two or three varieties of the Acacia, viz., Acacia dealbata (the Silver Wattle), A. mollisima (Black Wattle), and A. melanoxylon (Black-wood); the timber of each of these are excellent, and the bark of the two first mentioned are most valuable for tanning. In the Transvaal they are quite as hardy as the Eucalyptus, although more slow growing. I hope some one may take this hint, and give them a trial under similar conditions as Eucalyptus.

In a future communication I will give a few notes of my observations on the rearing and planting of Eucalyptus. *Chas. S. France, 7, Belmont Place, Aberdeen.*

SPONTANEOUS HYBRIDS OF HARDY PLANTS.

(Continued from p. 165.)

HYBRIDS of Polemonium are interesting as affording the most complete example of inversion of species I have seen in perennials. Out of about seven kinds which I have grown, five seem quite ready to make hybrids, the exceptions are P. pauciflorum, an annual with a very distinct flower, which I have only once grown, and P. confertum, a most unkind and capricious plant, which I have both obtained from nurseries and raised from seed collected in Colorado, but never can keep for more than a year or two. It has rarely flowered in my garden, but when it has, it has been in March or April, long before any other of the genus was in flower. P. cœruleum, including its variety, miscalled in gardens P. Richardsoni, as well as P. reptans, P. flavum, P. humile, and P. himalayanum, all make hybrids with one another, which are invariably quite barren. The inversion mentioned above is made by P. flavum × P. cœruleum, the seed parent P. flavum, as far as flower and leaves go, exactly reproduces the pollen parent, but the habit is less upright, and the flowering period much prolonged; the white-flowered and the blue-flowered are produced indifferently, and their constitution is very robust, as the plant may be cut to pieces and increased without trouble indefinitely. There is only one other hybrid in the genus, which, as a garden plant, is superior to either parent. This is P. Richardsoni (I write the name under protest, as it is certainly not Graham's plant figured in the *Botanical Magazine*, tab. 2800) × P. humile; this hybrid has the flowers of the seed parent (which is probably a variety of P. cœruleum) and the habit and stature of P. humile. Other hybrids in the genus present intermediate characters, but do not call for special notice.

Phlox has produced here several rather mysterious hybrids, I call them mysterious, because the most distinct has always been labelled in Kew Gardens as P. Stellaria, which it much resembles; however, two trustworthy gardeners have assured me that they raised it independently of one another from seed of P. subulata, before P. Stellaria had ever been in their gardens. I have never seen a seedling from the type P. Stellaria, which I keep with difficulty through wet winters, but this supposed hybrid, which I named G. F. Wilson, makes seedlings sparingly, some of which nearly reproduce the seed-parent; others seem to be crossed with P. amœna, others are nearer the type of P. subulata. Phlox G. F. Wilson has an exact portrait, made seventy years ago, in *Loddiges' Cabinet*, t. 1722, and is called there P. procumbens. The P. procumbens of Sweet's *English Flower Garden*, t. 7—also more than half a century old—is different. Both these portraits are noticed under P. procumbens in Asa Gray's *Flora of North America*. It is there said that they have never been matched by wild plants, and P. procumbens is placed by Asa Gray under P. subulata. This is the only set of hybrids I have ever seen in Phlox.

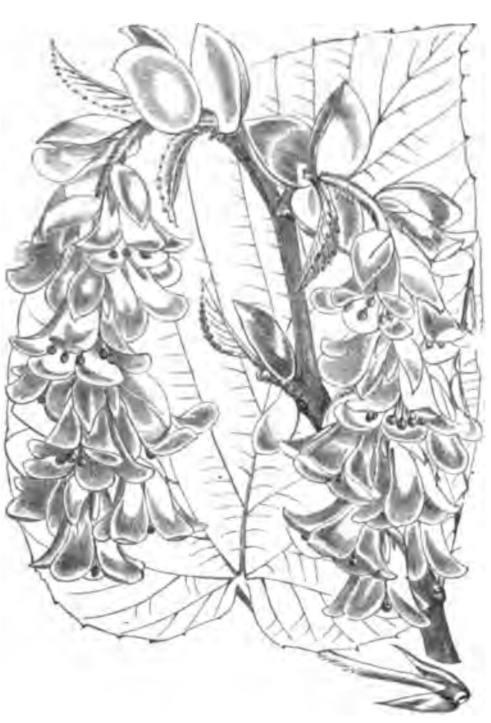


FIG. 79.—CORYLOPSIS SPICATA: COLOUR OF THE FLOWERS PALE YELLOW. (SEE P. 211.)

To speak of spontaneous hybrids of Primula, the European alpines of the Auricula group succeed but moderately out of doors in Edge garden, the wet and changeable winters allow them little rest, and they start into growth too early to escape injury from spring frosts when in flower. A good many are grown in cold frames, and the produce of their seed shows that they cross freely, but these natural hybrids of Alpine Primroses having been made a special study, are mostly well understood by botanists. One thing I can say, that seed saved in these frames either from the wild yellow P. Auricula or the purple P. viscosa, produces a great variety of what are known as "border Auriculas," and these hybrids are fertile and produce an ever-varying race.

The hardy species of Himalayan Primroses are grown out of doors at Edge in abundance. P. rosea and P. denticulata flower simultaneously; but I only once saw a manifest hybrid between them—two or three plants were produced the same season, in which the colour of the flower and the characters were intermediate between the two. The plants were vigorous enough, but were so far from ornamental, that no attempt was made to perpetuate them. Primula scotica and P. farinosa have more than once made neat little hybrids, but they were not persistent, and neither of these species come up here from self-sown seed. *C. Wolley Dod, Malpas, Cheshire.*

(To be continued.)

THE FERNERY.

FERN PROPAGATION BY APOSPORY.

AT the meeting of the Linnean Society on Thursday, February 2, Dr. F. W. Stansfield, of Reading, read an interesting paper on a case of induced apospory in Athyrium filix-fœmina, which should be of interest to cultivators of Ferns. So far, the instances noted have been upon varieties found wild, or which have originated under culture with the aposporous features manifest at once to experienced eyes, but in this particular case of A. f.-f. unco-glomeratum we have a more beautiful Fern, which for many years has shown no sign of the phenomenon, does not present in its fronds those peculiar attenuations which are usually correlated with it, and has only become aposporous after some eighteen months of close culture of detached pieces of the frond.

The whole case is remarkable from the fact that a normally deciduous species, without being subjected to warm treatment at all, was persistently grown for the time named, and that the detached pieces bore no roots, nor formed any until the prothallic stage had been arrived at, the tips remaining perfectly green, and dividing and re-dividing dichotomously in proportion as the basal portions turned brown and died. A. f.-f. unco-glomeratum is a seedling from a remarkably ramose form of the species found wild in Yorkshire, A. f.-f. acrocladon. The fronds of this plant ramify from the base upwards to such an extent as to form a loose ball of moss-like appearance, but this feature is exaggerated in the variety under notice, the division being carried to a greater extent, and usually only ending with the dying down of the fronds in autumn. Dr. Stansfield, however, observed that even then the minute dichotomous tips retained their verdure long after the fronds were down and otherwise dead, and in 1897 he determined to cut off some of these, and layer them to see what they would do. The result was the continuance of growth and division, as stated above, and eventually, when the proper growing season arrived, he was delighted to find that the dichotomous division ceased, and that here and there the ultimate tips were dilating into prothalli, while in addition bulbils began to form here and there, both on the ultimate ramifications and on the prothalli, sexually-produced typical plants resulting as well from the latter. The prothalli bore archegonia and antheridia, as is implied by the last statement, and in one case a typical Fern resulted from a cylindrical process from the under edge of a prothallus, which already bore an apogamous bulbil on its upper surface, and a sexual plant beneath it.

We have here consequently a Fern which is seemingly incapable of closing its circuits of growth by forming terminal cells; the apical cells continue to multiply indefinitely, building up as they proceed the typical form of the variety, until it becomes a question of forming roots or root-hairs, or stopping for sheer lack of nourishment. At this stage, aided by extremely close culture, they find a *modus vivendi* in two ways, viz., by forming bulbils, which develop roots and start new individuals, and by thinning-out their substance and forming prothalli which develop root-hairs, and so obtain a fresh foothold for another generation. Apospory here has clearly been entirely induced by protracted culture, and the result is the propagation for the first time of a quite unique Fern. Stimulated by this success, Dr. Stansfield laid down a number of pieces of various finely-divided Ferns, and reports that within a fortnight after he had done so, incipient prothalli were produced from extensions of the terminal veinules of Polypodium vulgare var. grandiceps, Parker, though unfortunately the culture went wrong and fungi destroyed the piece shortly afterward. This discovery brings, not merely new proof of the possibility of inducing apospory in unexpected quarters, but adds another species to the already swollen lists of aposporous Ferns.

The writer also availed himself of the opportunity of exhibiting a second aposporous Scolopendrium in which the heavy crests are fringed with prothalli all over, in addition to a few produced on lateral projections. The parentage of this Fern is not known, it declared its character in his collection as a seedling last season, and cultures have yielded dense clumps of prothalli which were exhibited in conjunction with the plant itself, though time precluded any observations thereanents.

Clearly with these examples before us, it would be well worth while to extend research to such exotic Ferns whose barrenness stands in the way of propagation, while their finely cut character may indicate the possibility above set forth. Incidentally it is worthy of remark, that apospory proves to be no bar to variation. Hitherto, indeed, in the several revised cases of aposporous plants of Polystichum angulare, the progeny has been defective and depauperate, but Dr. Stansfield has succeeded in raising pure bred typical plants from Moly's unique variegated form; and the writer raised an immensely improved plant of A. f.-f. clarissima, Bolton, so that culture in this direction may well compensate him who takes it in hand, both by enabling him to propagate presumed barren forms, and improve them by selection. *C. T. Druery.*

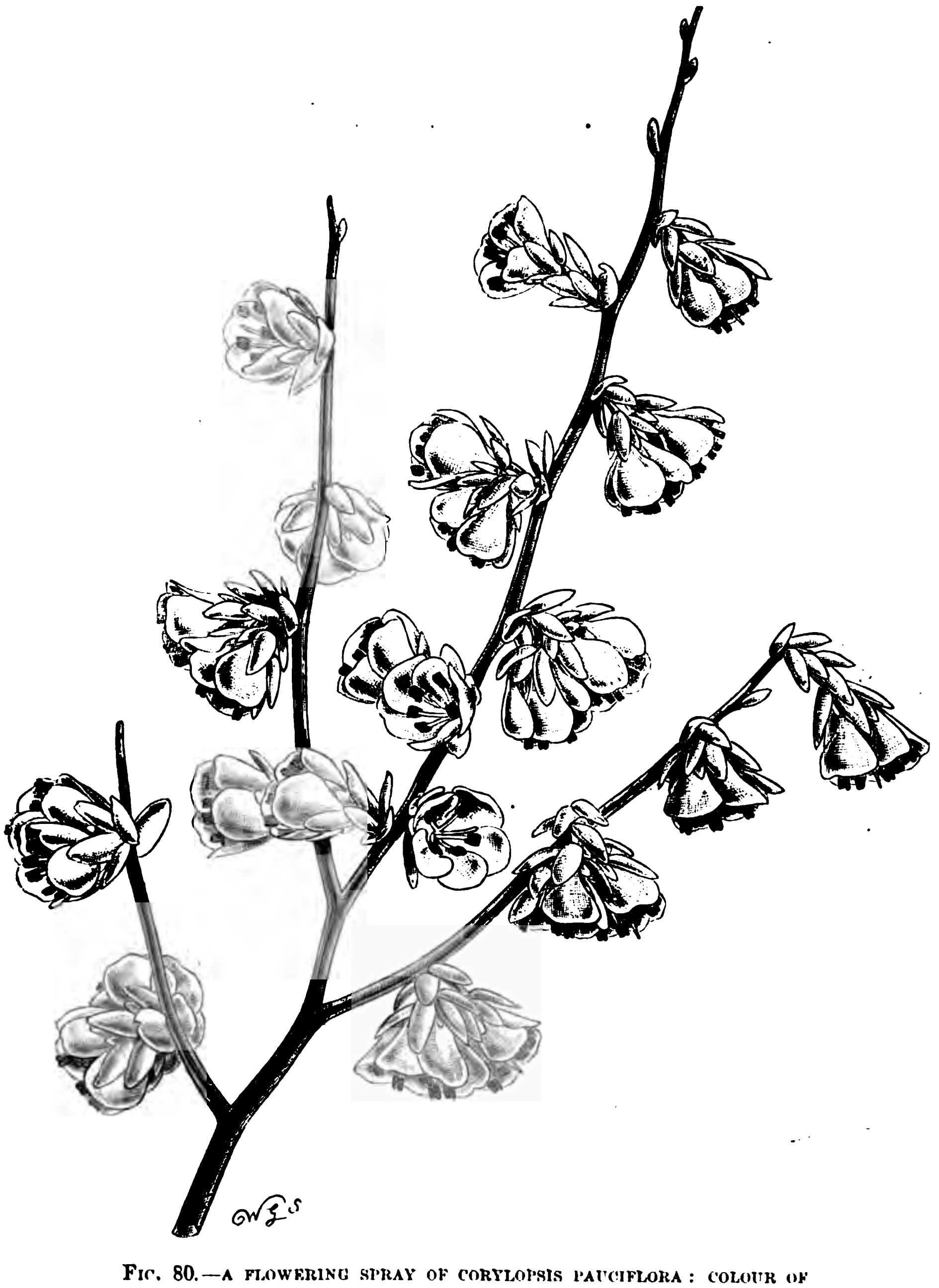


FIG. 80.—A FLOWERING SPRAY OF CORYLOPSIS PAUCIFLORA: COLOUR OF FLOWERS PALE CREAM OR YELLOW.

CORYLOPSIS PAUCIFLORA.*

SPRING-flowering shrubs are always welcome, but the present species, though long known, is by no means familiar to planters or gardeners. We owe the opportunity of figuring it to Messrs. William Paul & Son, of Waltham Cross, who exhibited it at one of the recent meetings of the Royal Horticultural Society. The day was so foggy that the flowers appeared to be white, but in a better light they are seen to be pale primrose-yellow. The shrub is perfectly hardy, the flowers are produced in early spring before the leaves; their general appearance is shown in the illustration (fig. 80). The shrub reminds one in general character of the Hazel, with the leaves of the Hornbeam. Its affinity, however, is with the Witch-Hazels (Hamamelis), also winter-flowering shrubs of much attractiveness, and with the Parrottia, whose leaves assume such glorious golden-bronze and purplish tints in the autumn. Corylopsis spicata (fig. 79) is perhaps better known. It has broader leaves than C. pauciflora, and ten to twelve flowers in the cluster instead of two or three only, as in C. pauciflora. Both species are of the easiest culture. We suggest that small plants might be lifted in the autumn and placed under glass, in order to accelerate the unfolding of the flowers. Probably they would not bear high temperatures. The construction of the flowers is so peculiar as to be of interest to the botanist, independently of their attractive appearance.

AMERICAN NOTES.

WINTER DAMAGE.

THE closing winter has been very hard on many fruits in nearly all sections of North America. Those sections which have suffered least are the Pacific coast fruit-region, upper New England, and the maritime provinces of Canada. The Orange-growing regions of Louisiana and Florida have been severely visited by freezing weather, the crop being wiped out in many districts. The Peach-growing sections of Georgia, Maryland, Delaware, New Jersey, Connecticut, Massachusetts, Michigan, and Ontario, are said to be so badly bitten by the cold as not to promise any fruit for this year's market. (It may be said parenthetically that it is customary in this country to magnify these disasters at this time of the year, though it really seems that the case is serious this time). Apple-trees which appear to be in excellent condition in the Eastern States, have sustained heavy damage in many parts of the Mississippi Valley. Secretary Goodman of the Missouri Horticultural Society says, "there never have been such serious results from any cold winter as this one, during the history of fruit-growing in Missouri." I am reliably informed that many thousands of Apple-trees have been killed in Minnesota, Iowa, Wisconsin, and neighbouring states. In all these sections Peaches, Plums, and other fruits (where grown) have suffered even more severely. This winter will be a final test for many of the much-advertised "ironclad" varieties.

EXTRA HARDY FRUITS.

The destructive winter will doubtless revive interest in the search for extra hardy varieties of fruits. This hunt has been going on in this country with waxing and waning zeal for a quarter of a century or more. No more interesting or instructive piece of horticultural history could be mentioned. Thousands of horticulturists, spread over a territory of 600 miles wide and 2000 miles long, have been striving by every means in their power towards one end. That end is the production or discovery of fruits (especially Apples) which shall withstand the severe winters of Canada and the Northern States. It seems to me that there has never been an experiment in plant breeding and acclimatisation attempted on such a tremendous scale. To a great degree the efforts have been successful, and Apple-culture has moved forward many miles upon the northern frontier in the last two decades. The work still goes on. There is not space here to give any account of it; but a few of its features have been the Russian expeditions of Charles Gibb, Professor Budd, and Professor Hansen; the extensive importations of Ellwanger and Barry, S. D. Willard, A. C. Tuttle, the Department of Agriculture; the intensely interesting breeding experiments of Peter Gideon and others, and especially the fortuitous discovery of hardy native seedlings. The man who would collect the facts could make a good book on this subject, one valuable as history, and valuable to horticulture.

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* Corylopsis pauciflora, Siebold et Zuccarini, *Flor. Japan*, cent. i. (1835), t. 20.

APPLE CANKER.

It is the opinion in Europe, I feel sure, that American fruit-trees are a badly infested lot. We are always discovering some new insect or fungus-enemy, and we are always talking about them—quite too much, so far as our relations with Europe are concerned. Our Trans-Atlantic friends should bear in mind the fact that we are making a very thoroughly organised study of these things here, and that minute knowledge of such subjects is demanded by all our successful fruit-growers. The latest orchard enemy to come to notice is the "Apple-canker." This is probably not the canker described in England by Forsyth (*Treatise on the Culture and Management of Fruit-trees*, 5th ed., p. 349), yet it is somewhat of the same nature. It has been commendably studied by Mr. W. Paddock, of Geneva, N.Y., who finds it to be caused by the same fungus that causes the black rot of the fruit, viz., Sphæropsis malorum, Peck. It causes the branches to blacken, and the bark to crack, and eventually kills the limb or the whole tree if not overcome. It seems that the disease is quite destructive in some parts of the country. It appears to be of more than usual economic importance, and we are glad to learn that it probably can be controlled by spraying with Bordeaux Mixture, and without altering greatly the plan of treatment now in vogue in all good American orchards. *F. A. W.*

THE ROSARY.

THE PRUNING OF ROSES.

Shivering here in Edinburgh towards the end of March, with from 12° to 20° of frost, and the north winds of March curdling one's breath, it was just a little tantalising to read Mr. Chapman's advice in your "Flower-garden Calendar," to prune Roses a fortnight sooner, as they were so much earlier than usual. Why, north of Tweed, and in large districts south of Tweed, the season has the safety and merit of being late. Even the fruit-buds, to say nothing of the more restful forest-trees and shrubs, are specially restful and dormant; and refused to move at the bidding of the two days or so of June that we had in the early days of March. But then Mr. Chapman wrote from genial Gloucestershire, and since he wrote, the west has also had a taste of an old-fashioned March, which may have robbed the instructions of the earlier pruning of Roses of their urgency. But then local conditions must be studied before beginning to prune. For example, advising as to Woburn, Bedfordshire, before the cold snap of 2° below zero the other week, one might have advocated early pruning. Now, probably, the middle of this month will be better.

The varieties of Roses and their idiosyncrasies must likewise be studied. Long ago we grew comparatively few species of Roses, and most of these, excepting the pink Monthly, flowered but once a year, and might with safety be pruned as soon after the fall of the leaf as convenient. In fact, the summer Roses, Cabbage, Moss, and hardy climbers, were pruned on the heels or abreast of the Gooseberries and Currants. The old Monthly or China Roses could hardly be said to be pruned at all in the modern sense of the phrase. The shoots were slightly protected, covered, or cut back almost level with the ground, and seldom or never failed to give a good account of themselves the current or coming season.

To a considerable extent, rosarians are finding out that what suited the old Chinas also suits modern Teas. The less pruning with many of these the more and the better bloom. Judicious thinning rather than close spurring is what these Roses most need. As to other Roses, modern growers have entirely reversed the old maxim as to hybrid perpetuals and other varieties. The stronger they grow, the harder and closer should they be pruned back or spurred in. The practical result, as proved by years of experience, being the longer the shoots are pruned off, the fewer and less perfect the blooms. Hence, now the clear and simple working rule in pruning is the maxim—the weaker the shoots, the harder they should be pruned; the longer and stronger, the less pruning—and thus it comes to pass that the spurs or Rose-shoots left for bloom may have as wide a range as from an inch to a yard or more. Mr. Chapman gives excellent advice on these points. I was also pleased to note his special paragraph devoted to the Pink Monthlies and other China Roses. I wish also to endorse his views as to the superiority of young Larches from 8 to 15 feet high as supports for pillar, pyramidal, or climbing Roses. These young Larches, if cut in the early spring and pealed in bole and branch, are more ornamental, clean, and lasting, than when the bark is left on. The Roses are more effective when the lower branches are left from 15 inches to a yard wide at the base, and taper into 6 inches or less at the tip, thus forming graceful cones. The resin in the Larch is as efficient as a coat of varnish in shedding off the rain and excluding vapour. In fact, I have found pealed Larch equally or more durable than varnished or tarred sticks or stakes. *D. T. F.*

NOTICES OF BOOKS.

THE PESTS AND BLIGHTS OF THE TEA PLANT, ETC.

By George Watt, M.B. (Calcutta, Government Press, 1898; pp. 467, t. xvii.)

This is an account of a visit paid by the author to the Tea-growing districts of Assam, in order to study the Tea-blights and to inquire into the value of Adhatoda Vasica as an insecticide. The report is professedly of a popular character, but lays down certain general principles for future guidance, and suggests means of co-operation between the planters and scientific investigators. An infusion of the leaves of Adhatoda proved serviceable in the case of red spider and white ants. A decoction of a Fern, Nephrodium aridum of Baker, has also been found an effectual insecticide; but as Dr. Watt points out, until the life history of each pest is fully understood, the application of insecticides is empirical and unsatisfactory. Where the plantations have been well cultivated there are relatively few blights, at the same time cultivation itself induces an unhealthy condition, or at least, a predisposition to disease. The Tea-plant is, as it were, forced to produce a disproportionate amount of foliage, and it is grown under abnormal conditions which predispose the plant to the attacks of disease.

Dr. Watt sketches briefly the physiology of the Tea-plant, and the practical details of cultivation. A good manure for Tea would be composed per cent. of mineral phosphate 50, saltpetre 30, wood ashes 20, potash, lime, nitrogen, phosphorus, all requisites for the growth of Tea being thus provided for.

Various leguminous plants are used for green-manuring. A detailed account of the various pests (insects) and blights (fungi) is given, together with indications as to the best method of coping with them. This portion of the volume is a veritable cyclopædia of information, and is most valuable for purposes of reference. How the unfortunate Tea-plant manages to survive at all is a mystery after the inspection of this formidable list of enemies.

BULLETIN DE LA SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

We have once more before us the annual publication of this useful and prosperous Society. Having already had occasion to notice it several years in succession, we need only say that the present issue is in style and get up, much the same as usual, although of course the literary matter in the body of the work is quite different. It is interesting to note that, both financially and numerically, considerable advance is being made, and that after ten years' existence, the Society can boast of a total of 500 members, including many of the most famous horticulturists on both sides of the Channel. Leaving aside the ordinary matter relating to the Society pure and simple, it may be worthy of mention that some of the papers read at the meetings of the Society comprised such subjects as the Swanley Horticultural College, Vine growing in Wales, the Leading London Parks, Notes from Annan, besides several others on cultural subjects. The frontispiece this year is a portrait of Mr. John Ouvrard, with a short biographical notice of that gentleman written by Mr. Geo. Schneider, the President of the Society, and to whose efforts so much of its success is due.

WEEDS.

The Canadian journal, *Farming*, as quoted in the *Agricultural Journal of the Cape of Good Hope*, in a recent number, contains a paper on this subject by the Professor of Biology and Entomology which may be interesting, and the study of weeds and weed-seeds as recommended may be found very helpful in fighting these enemies of crops:—

"An authority has stated that weeds have been a blessing to the farmer and gardener.

Very few will care to acknowledge off-hand the truth of this statement, yet when we look into the matter carefully much can be said in its favour. The continuous warfare that every tiller of land must wage in his efforts to control or exterminate the weeds keeps the surface-soil in better condition to withstand drought. The gardener must hoe, the farmer must plough, harrow and hoe, else his foes, the weeds, would soon get the upper hand and strangle the crop.

It is a well-known fact that any loosening of the surface-soil has the effect of conserving the moisture. The study of physics also reveals the fact that water rises in fine tubes or pores above the level of the water outside the tube, and that the smaller or finer the tubes the greater is this difference of level. When a gardener works the soil the pores are made larger, for the particles are made less compact than before, hence the subsoil water does not rise so high, and evaporation is not so rapid.

During seasons of drought this simple act of loosening the soil with a hoe and rake plays a very important part. Weeds compel this simple act, and hence are beneficial in this respect.

On the other hand, weeds, like other plants, require water, which is imbibed by the roots, and carried to the leaves. The great bulk of this water, which has acted as a vehicle for the transportation of salts from the soil to the laboratory of the plant—the leaves—is again transferred, or evaporated into the air, and hence lost to the soil. It can be readily seen how very important is this question of weeds in a dry season, when the subsoil-water requires to be looked after and conserved.

Again, weeds, like other plants, require nourishment, and, when they are allowed to grow, the salts, which should be absorbed by the crop, are taken up by the weeds. This piracy on the part of weeds can be stopped only on the death of the weeds.

Most farmers are able to recognise weeds. They can tell when one plant is interfering with the proper growth of some other plant which is of greater economic importance. A weed has been cleverly defined as a 'plant growing out of place.' Nearly any plant may become a weed, but only a few hundred out of many thousand become weeds of any economic importance. According to the definition given above, weeds would include the lower plants, such as smuts, mildews, rots, and moulds; but, popularly, weeds are looked upon as plants of considerable size, and the microscopic species are not considered.

A knowledge of the habits of weeds is the first essential in a scheme for their eradication. For example, the following habits should be thoroughly studied:—

1. Is the weed an annual, biennial, or perennial? If the weed is annual, destroy it before it seeds.

2. Is its seeding capacity great or small?

3. How are its seeds disseminated or distributed—by wind, water, or by animals? Many a farmer finds his fields full of Thistles through the carelessness of a neighbour, who neglects to cut his Thistles before they seed.

4. Is its root system extensive? The Thistle propagates itself by its extensive root system. The common Bind-weed has an enormous system of roots, which is almost impossible to eradicate. Kill the weed when it is young, before it becomes deeply rooted.

5. Is the weed a parasite? The Dodder fixes itself to the Clover-stem, and imbibes food from it through roots which it sends into the plant. The only remedy in this case is to destroy the Clover crop, and to be extremely careful in the selection of Clover seed.

Farmers must insist on pure seed, if they wish to keep a check on weeds.

A knowledge of weed seeds is nowadays necessary to the successful farmer.

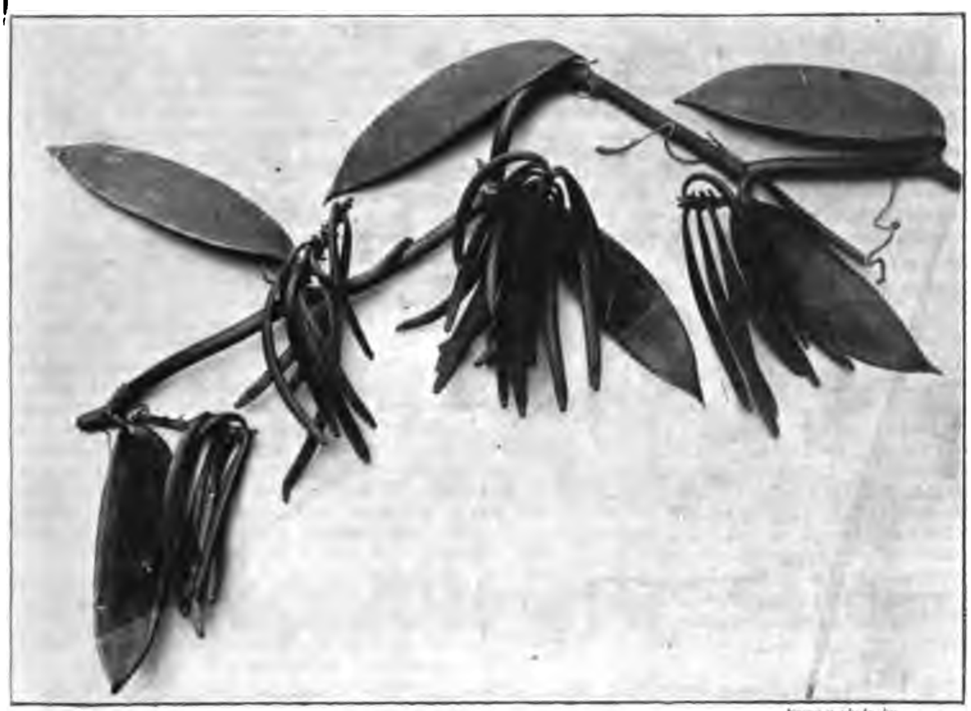
The botanical section of the Experimental Union is now making up sets of weed seeds, which will be distributed in due time to those who are interested in weed eradication.

Experience has shown that the following bad weed seeds are very frequently found in Timothy seed: Ox-eye Daisy, Yarrow, Chamomile, Thistle, and Fox-tail. Clover seed has Heal-all, Dodder, white and yellow Melilot, Pepper-grass, None-such, narrow-leaf Plantain, and Bouncing Bet. These are all most miserable weed seeds, which should be carefully looked after.

Eternal vigilance is the price of freedom from weeds."

VANILLA PLANIFOLIA.

Having this season been fortunate in securing a good crop of the Vanilla-pods, it may interest readers of the *Gardeners' Chronicle* to know our method of procedure. We do not always thus succeed in fruiting the species, though generally the plant produces a fair amount of bloom. In respect to setting the blooms, the instructions given in the *Gardeners' Chronicle*, vol. xxii., p. 307, should be helpful to those who have had but little experience in the matter. I have never known a pod to set naturally, and this shows the need there is to understand the peculiar formation of the flowers. The pollen is so much closed in, that considerable care is necessary to remove it to the stigma. Flowers that have not been artificially pollinated sometimes develop pods, but these fall as soon as half grown, and are useless. In my previous note above referred to, I stated that we had recently planted this Vanilla in a new position, and had given it more exposure. This has yielded us much better results, and though a partial shade is necessary when the plant is in active growth, it is injurious from October until March.



From a photo. by J. Gregory, Croydon.

Fig. 81.—Fruiting spray of Vanilla planifolia.

A total failure one year in the case of plants growing in shade, and of others in comparative light, induced us to plant in another house, where they were more fully exposed, and here we have had splendid results, some of the clusters having over twenty pods, and seven clusters on a single growth. The growths are very strong and healthy. Therefore, though partial shade is necessary during the hottest part of the day, I would condemn the use of one continuously. Though we have bees very close to the house, they do not appear to take the least notice of the plant when in flower; but it must be borne in mind that there are few flowers only open at the same time. They are rather insignificant also, being of a greenish colour, and devoid of aroma. It is important that the shoots be well ripened, and after the end of August I would shade but very little. The leaves under this culture will have less colour. We give a lower temperature in the winter months than is frequently advised. From March to the early part of September moisture is given freely, and the plants throw out thick fleshy roots, which lay hold of the wall or the woodwork with which they come into contact. What is termed a brisk stove-heat is suitable during the growing season, but in the autumn and winter months 60° by day and 55° by night will suffice. The plants should not be syringed during the winter, as if the pods are numerous, the syringing causes them to decay at the ends.

As regards temperature, I do not think a few degrees of heat more or less in the growing season of much importance if there is an ample supply of atmospheric moisture. We syringe three times daily, unless the plants are in flower, when it is best to keep the foliage dry. The Vanilla grows grandly in a Pine-stove if placed in such a position that the stems can get hold of some support upon which to fasten their roots. Having so few roots, only a shallow border is needed. This in our case is not more than 6 inches. The compost should be good fibrous peat, with large lumps of charcoal and clean potsherds. No matter how grown, the plants have a tendency to get naked at the base. We therefore take down each spring some of the best top-growths, and place these at the base, giving some fresh material for them to root into, keeping the house for the time a little closer, and syringing freely. The pods after setting, are only a few weeks before they are of full size, but they remain for seven or eight months on the plants before they begin to colour. This is an advantage, as the plant in a fruiting state is an interesting object. When the fruits are gathered, they should be kept in a drawer or other dry place. They are best kept in an air-tight compartment. When quite ripe, they then keep good for years, retaining their rich aroma. I have not spoken upon pot-culture, as I regard the one described as the most suitable. *Geo. Wythes.*

LODDIGES, AND STEAM-HEATING OF GLASSHOUSES.

We were reminded by the sale recently of the library of the late C. Loddiges, of the famous nursery carried on at Hackney by his progenitors, Conrad Loddiges, and his two sons, which, as was stated in an article on old suburban gardens, in a recent issue of the *Gardeners' Chronicle*, disappeared entirely late in the forties.

Loddiges' was the home of many of the new plants of the latter part of the last and first half of the present century. The glass structures at the Hackney nurseries, at the time probably the most extensive in the country, were, previous to 1816, heated chiefly by smoke flues. In that year, as we learn from a note appended to a description of Passiflora racemosa in the forty-fifth volume of the *Botanical Magazine*, steam was adopted as the heating medium; two boilers, each equal to driving a 20 H.P. engine, and fitted with safety and vacuum-valves, hydrostatic balance, steam-gauge, &c., and containing about 2000 gallons of water each, were erected. One boiler only was used at a time, the other being kept in reserve, in case of repairs being necessary. The steam pressure was low, never more than 225°, Fahr., or 4 lb. per square inch above atmospheric pressure. This was conveyed in cast-iron pipes of 4 inches in diameter into the largest stove, which was 200 feet long and 22 feet high in the centre; this house contained 30,560 cubic feet of air, which was kept in winter from 60° to 110°. From this house the steam was conveyed westward to three other houses, two being greenhouses, and one intermediate, having a total cubical contents of 15,160 feet; and eastward to a greenhouse 180 feet long, which communicated with another 492 feet long, containing together 45,000 cubic feet. These were kept in winter at an average heat of 50°, Fahr. There was altogether half a mile of pipe charged with steam, and the houses warmed to the furthest extent in about twenty minutes, effectually keeping the air under 20,000 square feet of glass without covering to the above temperatures, producing a regular, pleasant and highly advantageous atmosphere for plants, perfectly divested of every sulphurous and scorching quality which the best-regulated furnaces and nicest-constructed flues could never afford. The use of steam, however, made little headway in gardens, and early in the forties hotwater apparatus was taking the place of that and flues as a means of heating glasshouses. From this note in the *Botanical Magazine* it may be inferred that Messrs. Loddiges were among the first, if not the first, nursery firm to make use of steam heating.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

The Protection of Fruit Blossoms.—The severe weather experienced recently shows the necessity of having protective materials in readiness wherewith to afford shelter to fruit blossom, the week ending March 25 being one of the coldest on record for the season. The previous week or two having been comparatively mild and sunny, Peach and Apricot trees on south walls were in full bloom, and although a few degrees of frost were experienced, the weather being dry, there was not in our district sufficient frost to call for covering being placed over the trees before the morning of the 20th, when several thicknesses of garden netting were suspended over all our trees in bloom. Where wide copings existed this has, I think, saved sufficient bloom to ensure a crop, although 15° of frost were registered on three successive nights, and accompanied by frequent snow-showers. Peach-trees on walls facing the west were somewhat later, and much of the blossom had not expanded; this appears to be uninjured. It is a most noticeable fact that the blossoms in close proximity to the wall have escaped injury, where others projecting an inch or two from it have mostly suffered, and this is a point where trees nailed to the walls in the old way with shreds have the advantage in this respect over those trained to wired walls, which invariably stand further away from the brickwork, and consequently in cold frosty weather are more liable to suffer injury.

Plum, Pear, and Sweet Cherry.—The blossoms are swelling fast, and many of the former are expanded. Although it is hoped a return of cold weather may not take place, yet some preparation should be made for protecting the bloom, should the necessity arise to do so. No method is easier of application than that of sticking poles into the border 3 or 4 feet distant from the foot of the wall and reaching to the coping, and securing to the latter three or four-fold garden-netting, usually a sufficient covering at this season, whilst admitting ample light by day. The netting should be taken down as soon as the flowers have set, unless the weather is unusually cold. A quantity of this simple covering can be placed in position in a very short time. The netting should be fastened at the bottom edge to the poles in order to prevent its being blown about or against the trees.

Gooseberry Bushes.—These may be protected with branches of Spruce, Fir, or Laurel stuck around them; or what is perhaps better, a little dry bracken scattered thinly over them.

Bush and Pyramid Pear Trees are not so easily protected. Where of moderate size, four or five light poles, long enough to reach above the tops of the trees, may be tied together at the top, and the other ends be stuck into the ground around the tree. This will serve as a framework on which some thin covering may be placed, or a few branches tied on thinly to afford some slight degree of protection.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Winter-flowering Carnations.—The tops of young plants which have been potted into 60's should be pinched out as soon as it is seen that the roots have taken possession of the soil. The plants should at this date be harboured in a cold pit or frame, and when lateral shoots are produced after the stopping the plants should be shifted into 48's again, pinching out the points of the shoots when these are long enough, and the plants are well established in the pots. This stopping of the shoots is productive of bushiness and a free-flowering habit. Afterwards, the plants may be stood on a bed of coal-ashes out-of-doors, and later they should be afforded a shift —the last—into 6-inch or 7-inch pots.

Azalea indica.—Plants in need of re-potting should be attended to after flowering, and when growth has commenced. Clean, well-drained pots, a full size larger than the previous ones should be used; and for the compost use good hard fibry peat, a small quantity of broken charcoal, and a considerable quantity of silver-sand to give porosity. In filling in the soil round the ball, apply a little at a time, and ram it evenly and firmly with a thin potting-stick till it is as firm as the ball; having done this, place the plants in a temperature of from 55° to 60°, maintaining a moist atmosphere, and syringing the plants freely overhead to keep down thrip and red-spider. If the ball was thoroughly moistened before repotting, no water need be applied for a week or longer. As growth progresses, afford more air, and when it is completed, the plants may be stood out-of-doors.

Achimenes, Tydeas, and Gesneras.—The tubers of these various stove plants should now be placed in pans or boxes in which they are to be started, and earlier-started tubers into the pots or pans in which they are to flower. If an increase of the stock of any of these is desired, the tops of the shoots may be taken off, when 1 to 2 inches long, and pricked off in 5-inch pots to the number of eight or ten in the case of Achimenes, and five or six in that of Tydæas or Gesneras, and the pots plunged in a hot-bed, or placed in the propagating-frame. These take root readily, and flower well, as also the plants from which they were taken. All of the plants named should be grown not far from the glass in a warm pit or shed. The Achimenes do not succeed so well or flower so abundantly in a moisture-laden air as in a dry one; although in the latter red-spider is apt to cause trouble.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Three Species of Epidendrum of much merit are now in bloom, viz., E. Endresii, E. Wallisii, and the hybrid between them. All of the plants are in a forward state, and may be re-surfaced with living sphagnum-moss, or, when the flowers are over, they may be repotted, if the case demands it. Small pots or pans, almost filled with clean crocks, should be used, working in amongst the spreading roots a small quantity of sphagnum, and, in the case of E. Wallisii, some peat. The last-named and the hybrid may be grown in a sunny part of the Cattleya-house, and the first-named in a cooler and more shaded position of the same or similar house, affording each a plentiful supply of water, diminishing or increasing it in amount according to the state of the growth and the season of the year.

Oncidium ampliatum is an Orchid which always seems to be imported in its prime, as it usually grows smaller as time goes on. One reason of this retrogression is its extreme floriferousness, and being a cheap plant, cultivators seldom take the precaution of allowing it a year's rest by pinching out the flower-spikes as they would from more valuable plants. It is a warm growing species, subsisting for some considerable time in hanging-baskets, or placed near the roof according as the height of the house admits. Very little potting-material should be placed about its roots, and this should consist of peat chiefly, with clean crocks to fill the basket. During the summer when growth is active, much moisture is needed, but at other times but little, otherwise the bulbs will rot, or the leaves fall away. Bletia hyacinthina, now in bloom, will need large supplies of water until the foliage begins to decay. Sophronitis grandiflora having finished flowering, should still be given enough water to keep the compost in a well-moistened condition, likewise the pretty S. violacea now developing its growths. S. cernua, usually grown on a block, will need very little to keep its bulbs plump. Maxillaria grandiflora, having been kept on the dry side during the winter, should now be given water more frequently. When repotting this species, a small quantity of good fibrous loam should be added to the peat, and sphagnum-moss, its fine, almost hair-like roots finding greater nourishment if this be done. This is a fine cool-house Orchid when kept healthy, producing its flowers in abundance. Another desirable species is M. Sanderiana, whose flower-spikes are now developing, and on this account call for extra care when applying moisture, so that not any may lodge in the bracts enveloping the growing scape and cause disaster. The plant should be grown in shallow baskets suspended in the cool houses, and should not be disturbed until the flowers have faded.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Trees and Shrubs.—Attention should be given to all recently-transplanted trees and shrubs, first seeing that they are made secure against wind-waving, as the young roots will be pushing into the soil; and if the root-mass gets loosened, these roots break off, and growth is injured and retarded. The means of securing a plant may be by wire-guys, in the case of heavy-top trees and shrubs; stout stakes, to the number of two or three, in the case of less weighty plants, and one for a small one; but whatever is made use of, it should be effectual of its kind. Shrubs with but few roots when planted should be protected from the east wind, and shaded from full sunshine for the first season. Three stout stakes, with garden-mats fastened to them, form a way of shading them; and smaller shrubs may be protected with evergreen branches stuck into the soil. In dry weather syringe them overhead just as the sun is passing off them; it will keep them fresh till the sun rises. If the soil be porous, afford water heavily occasionally, and a mulch of manure after the first application. Water that has been warmed by the sun is better than well or pipe-water, as it does not lower the warmth of the soil, and thus check growth.

Kniphofias.—Clumps which were protected as advised in previous Calendars may now be exposed, but the old leaves may not be removed before the young growths are 1 foot high. If the soil is exhausted, lift the plant, remove a portion of the soil from the roots, and refresh the plant by adding plenty of rotten manure and some light loamy soil, and replant. Do not subdivide the patches, or do this but slightly. K. Uvaria glaucescens, U. grandiflora, and U. nobilis form grand masses of bloom, and look well when planted in wide spaces. Among shrubs of moderate dimensions, K. Tuckii is very handsome, and the earliest to flower, namely, in June. The strong glaucous foliage resembles that of a Yucca; the colour of the bloom is deep salmon-pink, shading to creamy-white. The new hybrids are very free-growing, and great improvements upon earlier forms, throwing up stout flower-spikes, and lasting a long time in perfection. Chloris, Lachesis, Obelisk, Ophir, Stella, and Henry Cannell have fine flowers, orange and yellow coloured. Leda, Matador, Pfitzeri, and Otto Mann, are of lovely shades of crimson and scarlet. The smaller forms, Leichtlini, distachya, corallina, Rooperi, and MacOwani, are brilliant in colour, and do best in elevated positions in the rock-garden. The present time is the best to plant, as if this operation be left until the autumn, the foliage is apt to rot, and destroy the crowns.

Begonias.—Stored tubers should now be examined, cutting away decayed parts, and dusting the cut surface with flowers-of-sulphur. Having overhauled the entire stock of tubers, place leaf-mould 2 inches deep in shallow boxes or trays, and lay each tuber on this layer about 1 inch apart, and place them in gentle heat to start. As soon as the tubers get plump, cover them to the depth of an inch with leaf-mould or Jadoo fibre, but afford no water before growth pushes through the soil; and when this is sufficiently strong, pot the tubers into 48's somewhat firmly, using a mixture of three parts yellow loam, leaf-mould, and sand. Place them in a cool frame, keep the lights close for a few days, and damp over and between the pots till roots form, and afterwards afford water carefully so as not to cause souring of the soil. Some tubers will be later than others in starting, and some may go blind. The larger tubers may be cut in half just between the growths, and potted in small pots. Let the tubers when potted be kept near the glass, and shade the growth from the sun. When the shoots are crowded some of them may be taken off close to the tuber, and inserted as cuttings in small pots under a hand-glass, where they will soon form roots and make useful tubers for another year. The yellow-flowered varieties are very distinct in growth and habit, but the deeper tints are lacking in vigour. These are best when kept by themselves, using less moisture and a few degrees more warmth.

Seeds.—The following seeds may be now sown in the open border:—Pæony-flowered, and other annual varieties of Poppies, Limnanthes Douglasii, Linums, Malopes, Mignonette, Nicotiana, Tropæolum, Hibiscus, Lathyrus, Clarkias, Calendulas, &c. Soil not heavily manured is best for these. This should be made level, and the seed sprinkled near the surface. Plants of Aquilegia, Campanulas, and other biennial plants raised in boxes, should be planted in borders, and in reserve garden for cutting purposes. Herbaceous plants that are to be added should be bought in at once to form good-sized plants to flower this year.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Tomatos.—The plants intended for planting outside should be potted before they get drawn and weak in the seed-pots, placing two in a 60 or three in a 48, using light, fresh soil mixed with road-grit. Let the young plants down to the seed-leaf in potting them, and afford tepid water with a fine rose-can to settle the soil. The pots should be stood in a warm frame, and afforded slight shade till established. Tomatos should be kept growing gently, and when large enough, repotted into 48's or 32's, from which they may be transferred to the open ground when the proper time arrives, and they have been suitably hardened off. If seed has not been sown, no time should be lost in sowing sufficient to meet the needs of this planting. The plants by June 1 should be fully 2 feet in height, and if some of the bunches of flowers have then "set," it will be a great advantage. Great care must be taken not to cause a check by exposure to cold air, affording very cold water at the root, &c.

Seed-sowing.—Seeds of Cauliflower for a large planting, and of Brussels Sprouts, Savoys, and Couve Tronchuda for a moderate supply, may be sown on a warm border, having previously levelled the land and raked it evenly and smoothly, and made it moderately firm. Sowing may be done in drills half an inch deep and 8 inches apart, or broadcast, hacking the seed into the soil with a rake. It is well, if the beds cannot be netted, to shake up the seed in dry red-lead. It is well to keep a memorandum of the times of sowing, and the names of the kinds and varieties, in case any of the labels should get removed. A pinch also of that valuable early Broccoli, Snow's White, should be sown.

Potatos.—Early, late, and mid-season varieties of Potatos may now be planted in bulk. If an exception be made, a few of Ashleaf may be preserved for planting late in July, for supplying new Potatos in the autumn. The strong-growing varieties should be afforded a space between the rows of from 2 to 2½ and 3 feet, when a better yield and less loss, should the disease attack the plants.

Beet.—Although as yet too early in the month to sow the main crop of Beets, some seeds of the Egyptian or Turnip-rooted variety may be sown on a warm border to afford an early supply of roots. Sow in patches of four or five seeds in drills, 1 inch deep and 14 inches wide; or they may be pressed in at 8 inches apart in rows, putting three seeds in each patch.

Vegetable - Marrows. — These are grown in a variety of ways, all of which answer well; and seed may be sown at any time from now onwards to May. I usually place three seeds in 4½-inch flower-pots filled with roughish loam and rotten stable manure, and stand these in a vinery, and when the plants are hardened off suitably in May, I plant them out on heaps of decaying garden-rubbish, or in trenches dug out 3 feet wide, and deep enough to permit of a good mass of manure being placed in them, and over all a layer of good soil formed into a flattish ridge, on which the plants are put out at 4 feet apart, and hand-lights placed over them till all risk from cold nights is passed. Vegetable-Marrows can be well grown on hills of half-spent manure; but for productiveness, a good soil made moderately firm, with not too great a run for the roots in rich manure, is best. Plants forwarded in frames should be kept thinned of the weaker bine, and afforded ventilation in accordance with the weather, and afforded water at the root, and suitable night coverings.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long Rood Ashton, Trowbridge.

Pot Vines.—The stoning period will now be far advanced, or even passed in the case of very early Vines in pots, and ventilation may therefore be allowed a little more freely. At the same time, there must be no extremes. A "chink" of air at night is beneficial when the berries have assumed the first stage of colour. Maintain a genial temperature by the aid of fire-heat, but a high night temperature should be avoided. There will be the same need for a periodic damping of the floor-space, at any rate for the time-being, as a change from moisture to a state of aridity would encourage insect attack. Water must be given to the roots in sufficient quantity and frequency to maintain the soil uniformly moist, and weak liquid-manure is best for this purpose. Such liquid can be obtained by soaking manures from the cow-yard, stable, or sheep-fold separately in tubs of water. Drainage collected from the farmyard in a tank affords an easy means of procuring the best of plant food, diluting it according to its strength and the purpose for which it is required. Bottom heat, arising from hot-water chambers, should now be slightly reduced; it will tend to a better finish being obtained in the fruit. The hot-bed of leaves and stable litter should be sufficient to furnish the required temperature without any or but slight additions, but in neither case should the heat be allowed to recede to a cool point. Attend closely to the stopping of all sublaterals, that the energy of the Vine be directly expended on the maturation of the crop.

Recently-planted Vines, instead of being allowed to make an unlimited length of rod, are best stopped periodically. If the point be removed after the cane has grown from 2½ to 3 feet, this will cause a direct strengthening of the stem growth, which will be very plainly illustrated later in the season. A leader may be chosen from the point where it has been stopped for the extension of the rod, and this again pinched when it has reached an additional length of 2 feet. A rod 6 to 8 feet long is a sufficient length to mature and retain upon a young Vine during one season, and the laterals beyond this may be regularly though not too closely pinched. The latter course is advisable in cases of extra strong-growing Vines, which, if kept unduly pinched, are apt to commence growth from the main buds.

Cut-back Vines intended for fruiting in pots next year should be given the same careful preparation; unnecessary lateral growth, or undue extension in length of rod being a waste of time and plant effort. Watering must be done with a regard to the state of the weather, and an excess must be as carefully avoided as drought. Until the pots have become well occupied with roots, it is better not to feed with strong stimulants, but when healthy and abundant root-action has been established, artificial or natural manures in liquid may be given advantageously.

Vine-eyes or Cuttings inserted early in February may soon be transferred into pots two sizes larger. If they have been plunged in a mild hot-bed up to this date, they would be better returned to the same (though not necessarily plunged), until they have taken hold of the new soil. Good turfy loam, with some old mortar-rubble or crushed bones, will be sufficient to use at this stage. A soft, sappy growth set up by the use of animal manures in the soil should be avoided. Vines need all the light available in the early as well as later stages of their growth. Light stakes should be given for their immediate support.

THE APIARY.

By Expert.

March has, in this district, been one long calm, with no rough winds to shake the catkin's pollen into the Nut-blossoms, nor whip the fragile Snowdrop's whiteness into a dirty brown. This anticyclonic period has been an advantage to the busy bee, whether foraging for pollen in the Crocus and Snowdrops, or culling the early sweets from the forward Palm, white Arabis, and other early flowers, or labouring incessantly carrying in water to supply the growing needs of the increasing family in the brood-nest. The calm weather and bright sunshine have enabled the bees to work in comfort, and with comparatively small loss of bee-life. The general opinion seems to be that breeding has commenced early this year, and consequently an extra run on the stores will result. No one at present, however, can tell if this early breeding will be of permanent benefit to the craft as a whole, or to any individual stock of bees; because if the young bees are bred out of season, they will be consumers only, and not producers, seeing that they cannot gather honey from barren fields. Nor do I remember seeing the fields look more barren than now for several years at this time of the year; night frosts have followed the warm sunny days, and have retarded the growth of vegetation, and kept things backward. Those who live in fruit-growing districts should try and take advantage of the early breeding, as by judicious management they may secure not only early honey, but also sweep the board in classes for honey of 1899 at the early shows, such as Royal Counties at Windsor, Essex Agricultural, and "Royal ' show at Maidstone.

Honey Imports.—The column of imports of foreign honey is interesting, and, I think, points to the fact that our industry, notwithstanding lower prices, must be growing. That bee-keeping is going ahead, that British honey and British bee-keepers are growing in favour with the British public, is patent to all observers. One cannot but notice, as one perambulates the large town, whether on foot, or bus, or tram, that the number of shops which stock honey and display the same in conspicuous positions are increasing. And it is gratifying to note in passing that the old time combination of "milk and honey" is still hand-in-hand. It is the dairyman who has taken hold of the honey trade.

Carbolic Cloths.—As far as my experience goes it does not hinder bees from going into sections, but I am quite sure that they needlessly irritate them, and I now never use them in manipulation. I find it far better to wring two or three unbleached calico quilts out in a solution of "Izal," one tablespoonful to a pint of water; then quietly peel off the quilt, drawing the wet one on at the same time. Let it remain a minute, then gently lift it for general observation as to strength of bees, &c. They will be quietly at work and seem to take no notice. Then replace the wet quilt, and taking another proceed to uncover one frame at a time, covering those inspected with the second wet quilt, so that none are exposed. A hive can be gone through, I find, without either excitement or the hint of a sting; while, when I have used carbolic the bees are all on angry buzz, seeming to say, "That nasty stuff frightens us so we don't know what to do; but, wait till we get our senses back, and then we'll pay you out," and so they do. I have gone through my small apiary of six stocks and not heard an impatient note, much less had a sting, from my dear little bees, by the above method.

TRADE NOTICE.

Mr. A. Hemsley, formerly with Mr. May, Dyson's Lane Nursery, Upper Edmonton, has engaged with Mr. Goodliffe as manager of his new nursery at Worthing, entering on his duties about April 15.

A Mammoth Willow.—We extract the following from the *Transactions of the English Arboricultural Society*. The tree was grown at Boreham, Essex, and measured when down 101 feet in length, 5 feet 9 inches in diameter, weighed upwards of 11 tons, and was as sound as a bell. It was planted in 1835, and was taken down on April 19, 1888 [query 1898], by Messrs. Warsop & Sons, for the sole purpose of making cricket-bats—1179 being thus supplied.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	APRIL 8	Royal Botanic Society, Meeting.
TUESDAY,	APRIL 11	Royal Horticultural Society of Ireland, Meeting.
WEDNESDAY,	APRIL 12	Royal Botanic Society's Exhibition at Regent's Park.
THURSDAY,	APRIL 13	Midland Daffodil Show in Edgbaston Botanical Gardens, Birmingham (2 days).

SALES.

TUESDAY,	APRIL 11	Imported and Established Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	APRIL 12	Palm-seeds, Carnations, Gladioli, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
FRIDAY,	APRIL 14	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 26 to April 1, 1899. Height above sea-level 24 feet.

1899.	Direction of Wind.	Temperature of the Air.				Rainfall.	Temperature of the Soil at 9 A.M.			Lowest Temperature on Grass.
		At 9 A.M.		Day.	Night.					
March 26 to April 1.		Dry Bulb.	Wet Bulb.	Highest.	Lowest.		At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 26	W.S.W.	48·8	44·8	54·2	37·5	...	37·9	39·2	42·9	34·5
MON. 27	S.S.W.	48·9	43·4	57·1	32·3	0·02	40·3	40·3	42·9	21·5
TUES. 28	S.S.W.	50·6	47·8	55·1	41·9	0·02	42·0	41·2	42·9	35·0
WED. 29	W.S.W.	55·0	49·1	58·9	50·0	...	45·1	42·3	43·1	43·7
THU. 30	W.S.W.	50·0	47·4	57·8	44·5	0·11	45·9	43·6	43·1	37·8
FRI. 31	S.E.	45·2	45·1	60·7	43·5	...	46·3	44·2	43·5	39·5
SAT. 1	S.S.W.	52·7	50·5	64·8	44·9	0·01	48·1	44·9	43·9	39·7
MEANS...	...	50·2	46·9	58·4	42·1	Tot. 0·16	43·7	42·3	43·2	36·0

Remarks.—The weather during the week has been very mild and spring-like, with a remarkable absence of sun.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—46·5°.

ACTUAL TEMPERATURES:—

LONDON.—*April* 5 (12 P.M.): Max. 60°; Min. 43°.

PROVINCES.—*April* 5 (6 P.M.): Max. 55°, Yarmouth; Min. 45°, Aberdeen.

Fine; Light Showers.

The Ocean as a Reserve of Heat for the Earth and Air in Winter and Spring.

SUCH is the comforting conclusion suggested by the facts so lucidly stated by Sir JOHN MURRAY in a paper read before the Royal Society of Edinburgh on Monday, March 20. Sir JOHN stated that the deep-sea temperatures had been placed on equal surface projection maps, and from a study of these it was estimated that over 90 per cent. of the sea-floor was occupied by water of less than 40° F., 49 per cent. being 35° to 40° F., 41 per cent. between 30° and 35° F., and 3 per cent. under 30° F. On the 10,100,000 square miles between the shore and a depth of 100 fathoms, there were annual variations in the temperature; while on the 127,100,000 square miles deeper than 100 fathoms no annual variation of the temperature had been observed, unless off the coast of North America, where the Gulf Stream and Labrador current run side by side.

Having thus stated the main facts as to the temperature over the floor of the ocean, Sir JOHN proceeded to the second part of his subject—the maximum and minimum temperature of the surface of the ocean. Studied in a similar way to the ocean-floor, it was estimated that in the coldest months to the north and south of the equator, 75 per cent. of the area of the ocean is over 40° F.; while in the warmest month of the year, 87 per cent. of the total area of the ocean had a temperature over 40° F. There was thus a striking contrast between the temperature of the floor of the ocean and that of the surface waters of the ocean. It was also to be observed that the bands of equal temperature ran north and south on the floor of the ocean, owing to the north and south trend of continental shores, while at the surface of the ocean the bands of equal temperature ran east and west. The effect of these differences in the distribution of temperature on the planktonic and benthonic organisms of the ocean was then illustrated by reference to pelagic foraminifera and other marine animals.

However potential the temperatures of the floor and surface of the sea, and its main currents and cross-currents in making the earth habitable for man, horticulturists may be pardoned at the close of an old-fashioned March of normal severity, and a prodigality of dust, cheap this year at a guinea a bushel, consisting of millions of acres of sand into ash-heaps (model seed-beds), if they also pause to note the great saving ministry of the sea is thus becoming the warming-pan for earth and sky, and the powerful and universal protector of our fruit-crops, now slowly advancing into blossom.

Fortunately, the latter are probably a fortnight later than usual; and the later the blossoming-time, the fuller the harvest, as earth, air, and sea get warmer as the year gets older. Fortunately for us, as fruit, flower, vegetable, and plant-growers, the cold water sinks to the lowest depths or floor of the ocean, and the warmer floats on the surface; while ice in its forming expands, becomes lighter, rises to the surface for the sun and air to convert it once more into warmer water, and enable it to resume its part in the warming and watering of the earth. With the major area of the surface currents of the ocean at a temperature of 40° there is no real danger of gardening nor gardeners being frozen out. And then we have the Gulf Stream for our special help, raising and genialising our climate in a most remarkable manner. At this critical season, with our fruit crops trembling in the balance, when snaps of cold are apt to come upon us with equal celerity and severity, it is well to be reminded of some of the greater and constant protective forces ever ranged on the side of the cultivator.

KEW. — A correspondent writes:—"The pleasure of a visit to Kew now-a-days is, to many people, greatly spoilt by the want of hospitality on the part of the officials so far as bicycles are concerned. It is bad enough to have to part with the machine at the gates at all in face of those well-kept and inviting gravel-tracks, but it is more distressing still to have to leave the favourite Elswick or Beeston-Humber outside the gardens, perhaps for some hours, on a stretch of grass unprotected by a roof of any sort whatever, and at the mercy of hail, snow, or thunderstorms. Under present circumstances, too, what can be easier than for the bicycle thief to take his choice of desirable machines, while his friend distracts the attention of the gate-keeper? Surely the British cycling public would not be asking too much were it to suggest that a weather-proof shed, provided with bicycle racks might be put up inside, at any rate, the main entrance to the Gardens. To the uninitiated there would seem to be ample space for such a refuge by the side of the shelters that are provided for confiscated baggage, or outside the garden along the wall whereon the time-tables are displayed."

THE SURVEYORS' INSTITUTION. — The next ordinary general meeting in London will be held on Monday, May 1, 1899, when a discussion will take place on the "Agricultural Holdings Bill," prepared and brought in by Mr. CHANNING and others. The chair will be taken at eight o'clock. The annual dinner of the Institution will be held in the King's Hall, Holborn Restaurant, on Wednesday, May 10, 1899, at half-past six o'clock precisely.

SINGLE BLUE HYACINTH "CHARLES DICKENS."—Besides the single blue variety, says the *Florilegium Haarlemense*, a double blue and a single lilac Hyacinth are known by the same name—both are sports from the single blue Charles Dickens. The well known single purple Hyacinth of the same name is from an entirely different origin, and should therefore be designated by another appellation. On the other hand, a pale lilac-coloured Hyacinth, Charles Dickens, not so generally known, is a sport from the single blue variety here represented. Finally, the double rose-coloured Hyacinth Lohengrin is worthy of mention—it is a sport from the double blue Charles Dickens. The above facts show the marked tendency of the race of Charles Dickens Hyacinths, to produce "sports," a circumstance that is not met with in such a high degree in other Hyacinths. Connected with this fact, undoubtedly, is the phenomenon so frequently noticed, that the spike of a single blue Charles Dickens is half blue and half red; while the dividing line between the two colours, as a rule, lies in a spiral around the cluster of flowers.

NOMENCLATURE OF PLANTS. — "At the present time, the only dictionary of the plants of the whole world, with their synonyms down to date, is the *Index Kewensis*; BRITTON and BROWN, and others cited, are excellent authorities. They are undoubtedly correct in their position, that many of the names they propose to be adopted should have been adopted; but they have a hard task in trying to upset the accepted nomenclature of the whole world, throwing everything into confusion, and utterly demoralising general literature, because some generations ago somebody blundered. In every other affair of life, even to the collection of an honest debt, there is a period when it becomes outlawed. The justification is, that by the failure of the creditor to collect in time, too many innocent interests become involved. In like manner, there can be no reason why thousands should be made to suffer by a change in plant names, because credit for the original was suffered to sleep for a century." *Meehans' Monthly, March*, 1899, p. 48.

YUCCA GLORIOSA IN A LONDON GARDEN.—On several occasions we have presented our readers with illustrations of this fine garden plant in flower in various localities in this country. We have recently received a photograph which represents a beautiful specimen flowering in a very small garden at Nunhead, London. Mr. HAMPTON's garden is but 21 feet square, and the Yucca is planted in the centre. The garden is quite hemmed in with large Poplars and brick walls, yet last season the plant produced a spike with 530 blooms, and after being cut down early in October, it threw up another spike with 27 flowers that were open during the first part of November. Surely, this is a plant that is worthy the suburban gardeners' appreciation.

Leyden.—The directorate of this famous garden, vacant by the death of Professor Suringar, has been entrusted to Dr. J. M. Janse, of the Buitenzorg Botanic Garden.

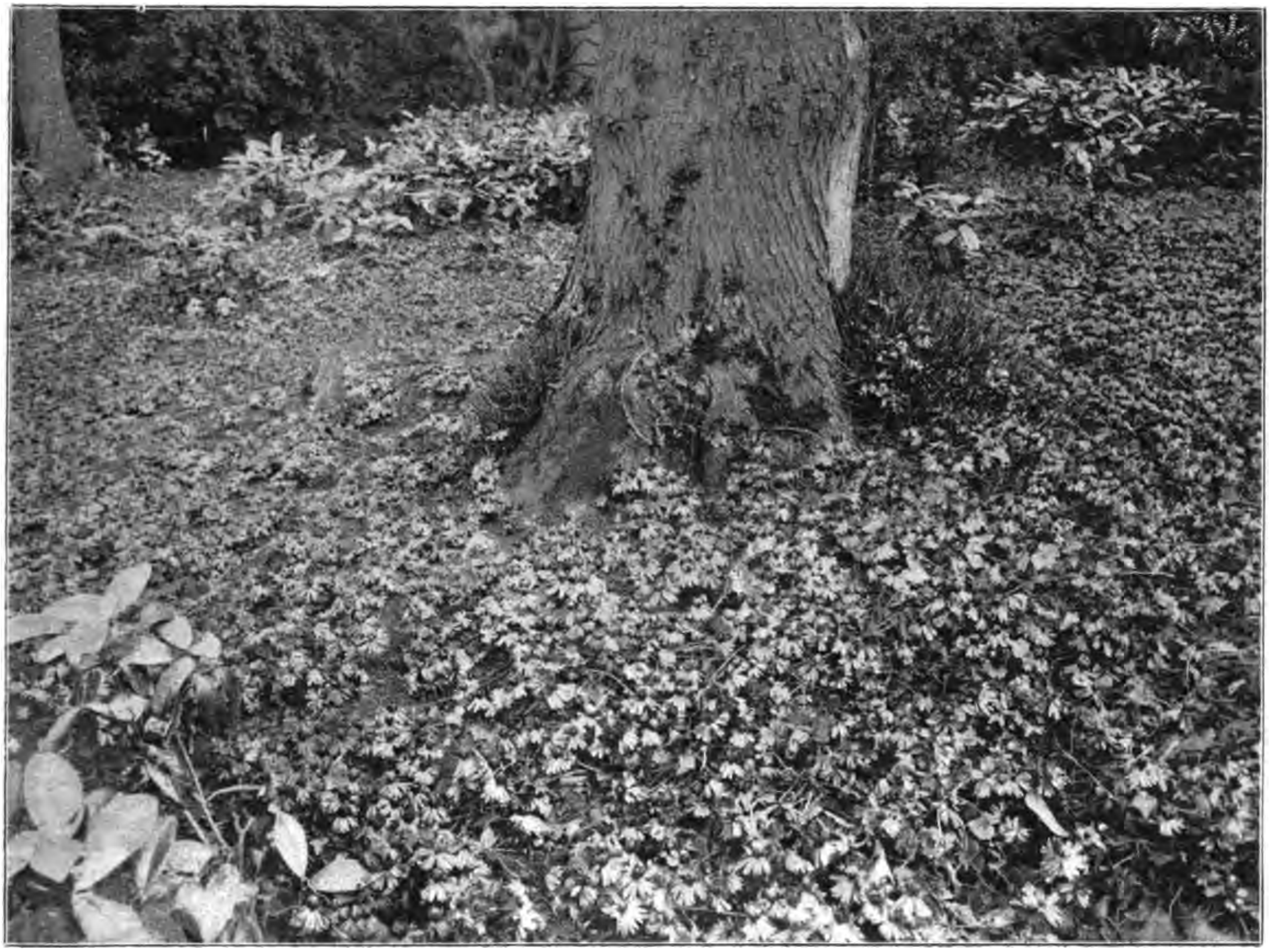


Fig. 82.—A display of winter aconites in the grass in Normanton Park, Stamford. (See p. 219.)

The National Chrysanthemum Society's Annual Report for the year ending Dec. 31, 1898, a copy of which we have recently received, contains a mass of useful information to cultivators of Chrysanthemums for exhibition purposes, or for the decoration of the garden only. Immediately following the report and balance-sheet presented by the Executive Committee, are given the lectures upon the Chrysanthemum rust-fungus, that were delivered by Mr. Percy Waterer and Mr. Geo. Massee at the Conference held in the St. Stephen's Hall, Royal Aquarium, on October 11. These papers, and the discussion that took place in connection with them, are worth the study of those who last season suffered from the attacks of this pest. The report of the Investigation of Sites, &c., Sub-Committee is given in full, and members may, therefore, discover the reasons that led this sub-committee, in the first place, to report in favour of holding the shows of the Society during 1899 in the Crystal Palace, Sydenham. The amended rules of the Society, and the later results of the work of the Classification Committee in regard to strictly incurved varieties, and to synonymous, or too-much-alike varieties, are items of information necessary to the exhibitor; and the awards of the Floral Committee should be useful as a guide to what are the most essential of the recent novelties. The September show, that we have repeatedly urged was useless, or even worse, has been discontinued, at any rate for the present year. There will be an early autumn exhibition on October 10, 11, and 12, the great mid-season competition on November 7, 8, and 9, and an early winter exhibition on December 5, 6, and 7. All of the above shows, together with the meetings of the Floral Committee, will be held, as usual, in the Royal Aquarium, Westminster. A large amount of interest will doubtless be excited by the class at the November show for twelve vases of Chrysanthemum blooms, for which a first prize of £20 is offered by Mr. H. J. Jones. Mr. Davis' class for specimen blooms, with a view to encouraging distinctness of colour, will also constitute an interesting feature.

On the Influence of the Removal of the Runners of Strawberry Plants upon their Fertility.—There are amongst Strawberry-growers different opinions respecting the removal of the runners of Strawberry plants. Whilst some say that it is best to cut off the runners as often as possible, others say it is better not to remove them before fruiting. To decide the question, Mr. Duerkoptf, Wolfenbuettel, has made the following experiments. Three hundred young Strawberry plants of the American variety Sharpless were planted in the middle of August, 1897, in six rows, fifty plants in each row, the plants were all of equal size and strength. At the beginning of September, when the plants began to grow, the runners of all the plants were cut off. From this date, September 5, the plants of row I. were deprived of their runners weekly, viz., on September 12, 19, 26, October 3, 10, and 17. Those of row II. were deprived of their runners fortnightly, on September 19, October 3 and 17. Those of row III. were deprived of their runners every third week, on September 26, October 17, and so forth, each following row being treated a week later, that is, row IV. every fourth week, row V. every fifth week, and row VI. every sixth week. On October 17, 1897, the experiment was interrupted, as no more new stolons or runners were formed. At the beginning of June, 1898, the first new runners appeared. On June 5, 1898, the stolons of all plants were removed. Then the plants in the single rows were cultivated in the same manner as during the previous year until

June 19. During the week, from June 19 till 25, the number of leaves, fruiting-stalks, and fruits of each of the 300 plants were counted. The result was: the plants of row I. had together 1175 leaves, 177 fruiting-stalks, and 916 fruits; those of row II. 1137 leaves, 159 fruiting-stalks, and 841 fruits; those of row III. 1139 leaves, 167 fruiting-stalks, and 860 fruits; those of row IV. 1009 leaves, 127 fruiting-stalks, and 628 fruits; those of row V. 970 leaves, 105 fruiting-stalks, and 618 fruits; those of row VI. had 928 leaves, 73 fruiting-stalks, and 482 fruits.

Division.	Leaves.	Fruit-stalks.	Fruits.
Each plant produced on average :—			
Row I.	23·50	3·54	18·32
Row II.	22·74	3·18	16·82
Row III.	22·78	8 34	17·20
Row IV.	20·18	2·54	12·56
Row V.	19·40	2·10	12·36
Row VI.	18·56	1·46	9·64

Except as to Row III., the results show that it is best to remove the stolons as often as possible. As to row III., the experimenter considers that some peculiarities in the soil may have influenced the result. The remarks concerning the ripening of the fruits in the different rows are interesting. On June 21 there were ripe :—

Row I., from 916 fruits, 53 fruits = 5·78 per cent.
Row II., „ 841 „ 59 „ = 7·01 „
Row III., „ 860 „ 36 „ = 4·18 „
Row IV., „ 628 „ 55 „ = 8·75 „
Row V., „ 618 „ 78 „ = 12·62 „
Row VI., „ 482 „ 54 „ = 11·20 „

Dr. Dammer, Gross Lichterfelde, Berlin.

CRACKING OF PEARS, ETC.—The *Gartenflora* and the *Bulletin d'Arboriculture* publish a figure representing the effect of the Bordeaux Mixture as a preventative of cracking in Pears, as a consequence of the growth of the Fusicladium dendriticum. The mixture in this case is made by mixing one kilogramme of copper-sulphate, one of lime, and a hectolitre of water, in the manner often detailed in these columns. The mixture, it must be remembered, is used as a preventative, hence it is used in the form of spray as soon as the fruit is set, and again when the fruit is half-grown. The figures of Apples so treated, and others of the same kind not so treated, is very striking.

THE LIFE OF PLANTS UNDER ADVERSE CONDITIONS.—Prof. REYNOLDS GREEN delivered, on March 14, a very interesting lecture on this subject, which is published in full in the *Pharmaceutical Journal*. When our columns are less crowded, we may hope to extract some portions of the address, which obviously are of greater importance to horticulturits even than to pharmaceutists.

ASEPTIC TREATMENT OF VINES.—According to *the Annales Agronomiques* for March 25, Dr. BARRETTO, a vine-grower of Brazil, applies aseptic treatment to his vineyard; that is to say, preventatives to preserve the plants against disease-bearing germs. To effect this, Dr. BARRETTO decorticates all the old wood, disinfects the whole stock, sterilizes the wires by heat, burns the dry leaves, washes the posts in copper solutions, and pulverises the whole vineyard with these salts as a preliminary operation. Dr. BARRETTO considers that perfect asepsis can only be ensured in stony grounds which restrict unwholesome and moist exhalations, and enable disinfection to be more conveniently carried out. These preparations yielded good results to the experimenter, and preserved his Vines from rot, which is prevalent in the State of St. Paul. In a further series of experiments, dusting with sulphate of alumina proved equally efficacious.

PROTECTION AGAINST PLANT-DISEASES.—In a recent periodical (*Praktische Blätter für Pflanzenschutz*, January, 1899), Professor J. E. WEISS, of Freising, gives results of some interesting experiments. He wished to test whether whole plants could not be treated as we do seeds, namely, by immersing them in some solution which would kill any fungi present without injuring the plants. He immersed plants of Hazel and Oak in spring-condition without leaves, also Box and Privet with leaves, in a 1-per-cent. solution of copper-soda mixture. After being twenty-four hours there the roots were uninjured, and the plants on being planted-out grew perfectly. He recommends that all plants brought into a garden from outside sources should be treated in this mixture for one or two hours before planting, thus ensuring the killing of any fungi they might have carried in. The 1-per-cent. copper-soda solution is made in the proportions—3 oz. copper-sulphate, 3½ oz. washing-soda, and 4 gallons of water. The two substances are dissolved separately in enough hot water, then poured together, and water added up to 4 gallons. This is a weak solution, but for delicate plants may be still further weakened by adding more water. Where plants are suspected, it seems a safe precaution to take. We wait to see what are the results of further experiments which the Professor has in hand.

NYMPHÆA "MARIE LAGRANGE."—The *Revue Horticole* of the 16th ult., contains a coloured figure of a hybrid Nymphæa as large as N. devoniensis of gardens, the petals being rose-coloured with a central light stripe. It was raised by M. LAGRANGE, of Oullins (Rhone), between the nearly allied N. Lotus and N. dentata, and, judging from the figure, is a very fine variety.

THE THIRTY THOUSAND DOLLAR CARNATION.—The raiser of Mrs. T. W. Lawson Carnation, Mr. PETER FISHER, is, says *Gardening*, a Scotchman by birth, and a thorough gardener by training. His nursery at Ellis, Mass., is entirely devoted to the Carnation.

MR. JOHN BARRON, of the firm of Messrs. WILLIAM BARRON & SON, Borrowash, Derby, having been married recently, about seventy employés of the firm were entertained to dinner on the 25th ult. In the interval between the dinner, and an enjoyable concert that followed, Mr. and Mrs. BARRON were presented with a handsome clock, and hearty expressions of good wishes.

DEVON AND EXETER GARDENERS. — The subject-matter of the last paper of the session, delivered last Wednesday, was, "Pelargonium Culture from an Amateur's Standpoint," the essayist being Mr. GEO. C. CRABBE, Exeter. Many useful hints on potting and the treatment of show, fancy, and zonal Pelargoniums, and of striking cuttings, were given in the paper. For the annual summer outing of the Association in July, it was decided to visit Sidbury Manor, the seat of Sir CHARLES CAVE, Bart., near Sidmouth. The spring session of this Association has been a most successful one.

THE TORQUAY DISTRICT GARDENERS' ASSOCIATION continues to exert a salutary influence upon horticulture in this much favoured western locality. The seventh annual report just to hand, shows how active the executive has been during the recent winter season, when fortnightly meetings have been held for debating useful subjects in connection with gardening. There have been twenty-six new members elected during the year, and the Association has a balance of £11, which it is intended to use for the purpose of adding desirable books to the members' library. Dr. R. HAMILTON RAMSAY is the esteemed President of the Association, and Mr. FRED C. SMALE the Hon. Sec.

PRESENTATION TO MR. JOHN LAZENBY.—At their meeting held on Thursday night, March 30, at the White Swan Hotel, York, the committee of the Ancient Society of York Florists presented to Mr. J. LAZENBY, who has resigned the post of secretary, an illuminated testimonial and a purse of gold, subscribed for by members of the Society and other friends. Mr. J. C. MILBURN took the chair. Mr. J. PILLMOOR made the presentation, and expressed the regret of the President (Alderman MCKAY) that he was unable to attend. Mr. LAZENBY, who has been secretary of the society for twenty years, was resigning on account of ill-health. In thanking the promoters and subscribers, Mr. LAZENBY alluded to the great progress made by the society, mentioning the fact that the first Chrysanthemum show was held in the house in which they were met together in 1879.

THE FOGS DURING MARCH have wrought great destruction amongst Peaches in the suburbs of London that happened to be in process of stoning at the time. We are acquainted with several instances where all of the fruits have since fallen. This is a rude reminder to the suburban gardener that his position is, after all, attended with serious disadvantages.

APPLES FROM THE ANTIPODES.—The officials of the Orient Steamship Co. enable us to state that the *Ormuz* has sailed for Tilbury with 17,000 cases of Apples, and the *Victoria* with 10,000 cases of the same fruit. The former ship will probably arrive on the 29th inst.

WAKEFIELD PAXTON SOCIETY. — At the ordinary weekly meeting of the members of the Paxton Society, held at the Strafford Arms Hotel on April 1, a good attendance was present, over which Mr. SWIRE, art master of the Technical and Art School, presided. The lecture on this occasion was entitled "Gardeners," by Mr. TWIGGE, jun., nurseryman, Wakefield. A discussion followed the lecture, and a hearty vote of thanks was accorded the lecturer.

GREAT EXHIBITION AT ST. AMAND, GHENT.—We are desired to state that a free entrance ticket, available for the whole time that the exhibition is open, will be presented to all nurserymen (not of Belgian nationality) who may be desirous of visiting the exhibition. Application should be made without delay to the secretary of the Ligue Horticole l'Union, Mont St. Amand, Gand, Belgium.

PUBLICATIONS RECEIVED.—*Journal of the Board of Agriculture*, March, 1899. This opens with a report on the British crops of last year, supplementary to that published in December, 1898, and indicating an "exceptionally high standard of production reached." There are also papers on the imports of agricultural produce, Indian agricultural exports, and various allied subjects.—*Familiar Wild Flowers*, by F. E. Hulme, F.L.S. (Cassell & Co.); popular edition, part 1, with ten coloured plates.—*Nesting Boxes for Birds*, by Joseph King. Being No. 1 of the Peasants Arts Pamphlets (Peasant Arts Society, Queen's Road, Bayswater). An attractive illustrated brochure advising the making of nesting-boxes for birds: starlings, tits, redbreasts, &c., near dwelling-houses, and speaking in commendation of birds generally, to the exclusion, of course, of the "cheeky, thievish," and universally unpopular sparrow.—*Proceedings and Journal of the Agricultural and Horticultural Society of India*, for October-December, 1898. This includes a paper by Mr. A. J. B. Gisseleire upon a "sport" of Canna "Partenope" recently figured in our columns; advice to amateur irrigationists; exhaustion of fertile soils, and other items.—*Canadian Horticulturist*, March. Among the articles we note the following :—Packing Apples for export; wrapping fruit and vegetables; Stirling Horticultural Society; good results from spraying in Eastern Ontario; Apples for export, and varions shorter communications.—*Die Vegetation der Erde*, A. Engler und O. Drude (Leipzig, W. Engelmann). To be noticed more fully shortly.—*Tijdschrift voor Tuinbouw*. Vierde jaargang; achtste aflevering.—From the Australian Association for the advancement of science, a paper by J. F. Bailey on *Plants of the Rabbit-infested Country, Bulloo River, S. Q.*, a useful catalogue, although "not to be taken as representing the flora of the district; it will give some idea of those plants which were able to withstand the severity of the climate of those parts, and produce food when all else is parched up. It was impossible to identify those which had sprung up, owing to the recent rains, and causing the country to look so green, as they were, of course, in too young a state." The paper is illustrated from photographs supplied by Mr. C. J. Pound, Government Bacteriologist of Queensland.—From the same Association comes another paper by J. F. Bailey on the *Flora of the Islands of Torres Straits and the mainland about Somerset*.—*Experiment Station Record*, Vol. xiii., No. 1, U. S. Department of Agriculture, containing papers on: The Physiological Rôle of Water in Plants, by E. Gain; Action of Different Colours upon Plants, C. Flammarion; Formation and Assimilation of Asparagin, O. Loew; Occurrence of Nitrates in Germinating Plants, E. Schultze; Nitrogen Assimilation in the Cotton Plant, C. E. Coates and W. R. Dodson; Sub-irrigation in the Greenhouse, W. J. Green and E. C. Green; Cabbages, H. P. Gould; Garden Peas, B. C. Buffum; Apple Culture in Wisconsin, E. S. Goff; Currants, S. A. Beach; The Russian Thistle, E. O. Wooton; Potato Blight, L. R. Jones, &c.—*National Nurseryman*, March.—*Agricultural Gazette of New South Wales*, Vol. x., Part 1, Jan., 1899. This contains articles on Insect and Fungus Diseases of Fruit Trees and their Remedies, Messrs. Allen, Blunno, Froggatt, and Guthrie; Exotic Grasses (Paspalum dilatatum), J. H. Maiden; Useful Australian Plants (Agropyrum velutinum); Native Fodder Plants, and Botanical Notes, by J. H. Maiden, and Orchard Notes by W. J. Allen.—U. S. Department of Agriculture, Division of Entomology, *The Chinch Bug*, by F. M. Webster.—*Bulletino della R. Societa Toscana di Orticultura*, Febbraio.

PLANT PORTRAITS.

Acacia alata, *Revue de l'Horticulture Belge*, March.

Azalea indica, "Ceres," white, striped with red; good form; *Revue de l'Horticulture Belge*, April.

Bomarea Carderi, Masters, *Garden*, February 25.

Dioon edule var., *Garten Flora*, March 15, figs. 32—39.

Echinocactus Whipplei, Engelmann, *Meehans' Monthly*, March. The flowers are represented of a pink colour.

Fendlera rupicola, *Revue Horticole*, March 16, woodcut (Saxifrageous shrub).

Fugosia hakeifolia, *Garden*, March 25. A Hibiscus-like Malvad, with linear leaves; flowers pale lilac, 3½ inches in diameter.

Helianthus mollis, *Garden*, March 4.

Hyacinth Charles Dickens, single blue, raised from seed by Mr. Marten Mulde, *Florilegium Haarlemense*, t. 25.

Kniphofia Nelsoni, *Garden*, March 11.

Ligustrum japonicum variegatum, *Revue de l'Horticulture Belge*, April.

Lissochilus Graefii, Kranzlin, a terrestrial Orchid, with loose spikes of flowers, each flower about 5 cent. (2 inches) across, with spatulate brown sepals, spreading petals, white within, yellow externally, fore-lobe of lip yellow; *Garten Flora*, t. 1460.

Magnolia Watsoni, *Gartenflora*, February.

Narcissus, 1, Pseudo-Narcissus, var. Emperor; 2, bicolor Empress; 3, incomparabilis Sir Watkin, *Florilegium Haarlemense*, t. 27.

Plum Gloire d'Epinay, resembling the Prune de Monsieur, very productive; fruits large, globose, purple, ripening before the Green Gages. A chance seedling; *Revue Horticole*, February 16.

Plum, Satsuma, a Japanese variety, with red flesh; *Bulletin d'Arboriculture*, March.

Rose, Mrs. W. J. Grant, a fine plate of a fine Rose; *Garden*, March 18.

Russelia sarmentosa, *Revue de l'Horticulture Belge*, March.

Tulips, Rex rubrorum, double red; and La Candeur, double white, *Florilegium Haarlemense*, t. 26.

SPRING FLOWERS ON GRASS.

This, like not a few other new things in horticulture, is not so novel as might be supposed. Twenty or more years ago the late Mr. William Thomson showed, from data gathered from several gardeners, that many old mansions possessed attached lawns on which spring-flowering plants had been known to have flourished as far back as the "oldest inhabitant" could remember. By means of the same individual, the large expanse of half-kept ground here, called "The Wilderness," is known to have been more or less a large spring garden on grass during the whole of the present century. Unfortunately, there is no means of determining with certainty how or when the flowers came there. We do know, however, that a "Wilderness" was planted some time near the middle of the seventeenth century, and between 1700 and 1707 it was much enlarged and laid out in straight walks, which were composed of grass. Sixty years later, the "natural" style caused another alteration. The straight walks, with their tall hedges on each side, were obliterated, and "serpentine" walks introduced. Gravel was substituted for grass, and the interspaces, where shrubs and common flowers were cultivated, were laid down in grass. It is not exceeding the bounds of probability to suppose the tens of thousands of Primroses of various hues which now carpet acres of ground to have originated from the "Wilderness" plantations. The wild Tulips, double-flowered Daffodils, Cowslips, and Star of Bethlehem doubtless descended in the same way.

Left, practically, to a state of Nature, these semi-wildings afford matter for thought. The Primroses, with quaint-looking flowers, whose petals stand wide apart from each other as the arms of a windmill in miniature, are decidedly of erratic temperament—spots they rendered beautiful thirty years ago have to-day scarcely a representative left; and other portions known to have been clothed with grass only, are now thickly covered with plants. Their rate of progress is not rapid. Some seedlings from an improved strain that I planted in a bare spot have, in a dozen years, spread from the centre no more than as many yards. Sometimes the seedlings form a thick clump, the flowers all of one colour, as if a capsule with its seed had been dropped on the spot. At other times they are thinly dispersed round the parent plant; they cultivate sociability, and so we find them crowding each other under the shade of tall Hollies, or cuddling close to the base of some giant tree. Those, however, whom fate has placed in the opener glades spend their lives, which are rather short, more apart.

Snowdrops display much individuality. Out of hundreds very few can be found that agree in all particulars. Some are very early, others late in flowering; some tall, some dwarf. The flowers of a few are very diminutive. Both outer and inner segments vary greatly in shape, so much so that instances occur where the inner are almost identical with the outer. The markings of the former, again, are very varied; green, yellowish, none! Snowdrops decidedly prefer the shade of large-growing trees; but they also wander to the open, and a seedling is sometimes found three to six yards from the nearest group. How the seeds are carried I have not discovered. As the seed-pods fill, the stem naturally declines to the ground, and by the time the seeds are ripened, the capsules are buried out of sight in the grass, so that some outside agency must help in the dispersion of these isolated plants.

Narcissus minor is another plant that seeds freely, and among the seedlings very great diversity occurs in the size and the shape of the flowers. This plant, however, does not wander, and the young seedling are always found close to the parent. I have seen seedlings from no other Narcissi. In addition to the old-established Narcissus incomparabilis, N. poeticus, and the common yellow, many kinds have been introduced during the last twenty years. A method, at once cheap and successful, is to flower the bulbs the first year in pots and then in May to transfer them to the "grass," either planting in small clumps as grown in pots, or singly shaking them out. One of the prettiest thus grown is N. ornatus. I have also established one or two sorts of Polyanthus narcissus.

Hyacinths die out in the course of a few years, nor are Tulips any longer lived. Tulipa sylvestris, however, spreads in the most extraordinary manner by means of stolons which it makes in early spring.

Crocuses are most difficult to naturalise; not on account of soil or dislike to the position, but because of the fondness mice and some birds have for the corms. Pheasants are extremely fond of them, and, when visiting some gardens near Ayr a few years ago I was shown examples of the ravages of the common rook, which dig up the roots and consume them. Mice may be kept from the corms by means of very close-meshed wire-netting laid an inch or two above masses of the corms, the whole being covered with soil. I have also tried deep planting, that is about 10 inches below the surface, and have found birds circumvented in this manner. I always plant out forced Crocuses after flowering, but strong-growing varieties alone ought to be selected; dark purple flowers are unsuitable, and best of all is the Golden yellow.

The pretty blue Scilla præcox succeeds well, and also Ornithogalums, of which none surpass O. arabicum. Alliums also are in an eminent degree suited for growing in Grass, but in the case of these we are encroaching on the flowers of summer. *R. P. Brotherston, Tyninghame, N.B.*

[Our illustration (fig. 82, p. 217), shows how well the Winter Aconite, Eranthis hyemalis, succeeds under conditions such as are above mentioned, and under trees. The photograph was obligingly forwarded to us by Mr. J. Butler, gardener at Normanton Park, Stamford.]

SCOTLAND.

THE CRUICKSHANK BOTANIC GARDEN FOR ABERDEEN.

Thanks to the munificence of Miss Ann Cruickshank, the public of Aberdeen will shortly possess a first-class botanic garden and museum. Before proceeding with the laying-out of the gardens, the trustees appointed under the bequest consulted Mr. Nicholson, of Kew Gardens, who visited Aberdeen, and made a personal examination of the ground. That gentleman's report has been the basis on which the arrangement of the gardens has been laid.

In the old Gymnasium School, arrangements will be made for the study of systematic botany, with laboratory accommodation and lecture conveniences. The trustees have it in view to construct at some future time a suite of rooms running westward from the back of the main block, for the study of physiological botany, with suitable laboratory and other accommodation. It is estimated, however, that such an extension would cost nearly £3000. At the south end of the present main building, a granite structure is to be erected, to serve as a botanical museum Its dimensions are to be 50 feet long, 36 feet wide, and over 30 feet high to the apex of the roof. The building, which will have a most graceful appearance, will be lighted from the roof, and will be open to the public.

In regard to the gardens proper, a careful examination has shown that there is a depth of about 2 feet of good black soil, very suitable for the purpose in view. The main entrance to the gardens will in the meantime, at all events, be the present gateway in Chanonry. From this entrance a main walk will lead round the south end of the museum, and then strike almost due west, through the centre, from end to end of the ground—which, altogether, is between 5 and 6 acres in extent. From either side of the main walk, subsidiary walks will carry the visitor to all parts of the gardens. A portion of the ground in the south-east corner, at present used as a market-garden, will be retained for a propagating-ground for the botanical garden; and another piece, about half an acre in extent, will be set apart for the use of the Agricultural Department of the University of Aberdeen. Practically, all the rest of the ground will be laid out in plots for the culture of herbaceous plants, after the manner of the Royal Gardens, Kew. The small building in the south-west corner of the ground, intended at one time as an isolation hospital for the Gymnasium School, will be utilised as accommodation for the gardeners. The gardens are to be free to the public under as favourable regulations as it is possible to frame. The plans, which have had the full approval of the trustees, have been prepared by Mr. Bennet Mitchell, architect, in conjunction with Dr. James W. H. Trail, Professor of Botany, Aberdeen University, who has taken a close personal interest in the carrying out of the scheme. *K.*

HOME CORRESPONDENCE.

EUCALYPTUS.—In reference to Dr. Bonavia's remarks, I may say, that one of the leading druggists in Rome told me that the medical men there had made a series of experiments about the medicinal value of Eucalyptus-oil, or eucalyptine, as it is called, and that they attach small value to it. On the other hand, the very great efficaciousness of the trees for drainage purposes is beyond all dispute. *H. E., Mentone.*

THE CAMELLIA IN ESSEX.—The enclosed Camellia-blooms and foliage were cut from a tree growing out-of-doors and over-hanging the lake, being reached in fact by the aid of a boat. There is a very old man here who has worked on the estate fifty years, and he says that the Camellia was planted before his time. The tree must have withstood some very hard winters during half of a century. *Edwd. Collins, Cranbrook Hall Gardens, Ilford.* [If the tree has been in such a position for the length of time stated, it is a notable specimen. The flowers sent are small, of course, but the foliage is very good. Ed.]

MARÉCHAL NIEL ROSE.—Referring to Mr. Fish's useful remarks concerning the disease Maréchal Niel Rose is so very subject to, I think two considerations have to be borne in mind in the endeavour to find a remedy. That it is a matter of great importance none will gainsay who have any knowledge as to the immense numbers of plants which are purchased and die, after a year or two's growth, or an attempt to grow. Primarily, it is probable that the method of growing-on the plants so vigorously in unnaturally high temperatures, before they are disposed of, may be the cause of lack of success when they are ultimately planted out. Certain it is, that plants grafted at or below the ground-line, notwithstanding this initial vigorous growth, succumb the most. May not contact of the Maréchal Niel wood with the cold ground in a soft, immatured state, be the cause of both this and knotting? This variety neither succeeds thus, nor properly long together, as a standard much pruned-back, as is usual with standards. Its nature and desire is to make vigorous growth; in furtherance of which, I have known plants under glass, cut down annually, succeed well. Buds grafted about 3 or 4 feet high upon Gloire de Dijon make vigorous shoots. I have had dual ones from such buds 14 feet long in the season; and it is possible by this system of budding greater success may be obtained. *William Earley.*

THE ABNORMAL GROWTHS ON MARÉCHAL NIEL ROSE.—Your correspondent, "D. T. F.," with many other writers on the swelling of the stem of this Rose, usually refers to it as a disease, and also as being constitutional. But whilst I admit that it is constitutional, I cannot admit that it is disease or ill-health. The general cause of this swelling of the stems of the scion seems to arise rather from the excessive elaboration of sap through the agency of strong leafage, thus leading to the formation of cambium by the return or aërated sap, in a way too free and rapid for the capacity of the stock to utilise it, unless the stock be of similar gross or strong-growing nature. But as I have said, with large experience of M. Niel worked on to gross growers such as were previously named, this cambium swelling, miscalled canker and "gout," never occurred. Has anyone tried that grossest of all Roses, Crimson Rambler, which strikes so freely as cuttings, as a Maréchal Niel stock. This should answer admirably, as it is in itself a free cambium creator. But the working should not be onto small shoots. The plants should be induced first, after being well rooted by hard cutting back, to send up one of its characteristic strong growths from the base of the stem, and that should be the budding medium. Then there can be no doubt but that scion and stock would swell together freely enough. Without doubt the primary cause of the trouble with Maréchal Niel has been in working it persistently on stocks that, whilst excellent for other Roses, are unfit to meet its peculiar requirements. *A. D.*

THE WEATHER IN NORTHAMPTONSHIRE.—I am afraid in some cases the severe frosts and bitter cold winds during March have done considerable damage. Peach and Apricot-trees, however, have not suffered greatly, as only those blooms that were fully expanded have been killed. Roses have suffered very much indeed. I scarcely know at present how they will succeed this year, but they are not likely to be very fine. I examined our Onion-bed on March 29; the seedlings are about an inch high, and under a small magnifying glass the tips seemed as if they had been frozen, and had since damped off. It is to be hoped that such is not the case generally. A singular circumstance in connection with the frost is that the Tree Mallow (Lavatera arborea variegata) does not seem to have taken any harm, except the very young tips that have grown this year. I do not think the spring-sown Peas or the Spinach have been hurt, and at present some early Turnips that were through the soil appear to be all right, but they will most likely damp off. A friend about 5 miles from Lamport has lost 40 poles of Potatos, the frost having penetrated the soil to such an extent that he fears they are quite spoiled. The most severe frost we have had has been 20°, and our elevation is 450 feet. *H. Kempshall, Lamport Hall Gardens, Northampton, March* 30.

IVY LEAVES EATEN BY AN INSECT.—On page 189 of the *Gardeners' Chronicle*, a correspondent, R. D., asks if any one has had similar experience of Ivy leaves being eaten. We have here an old Oak tree, whose branches are cut off to within a few yards of the trunk, the whole of which is covered with Ivy, and forms an object of beauty all the year round. Last August something was noticed to be eating the Ivy leaves, especially those near the base, and I made a close examination without detecting anything. But the next day I had success, for I found on a stalk-leaf of an Ivy, a caterpillar 1¼ to 2 inches long, almost of the same tint as the Ivy wood; indeed, so much so, that it was not easy to distinguish it. It had four legs at the ends of the body, and with these it can fix itself very firmly on to the wood or leaf-stalk [a looper, Ed.]; it is also very strong, for while fixed firmly to the wood with its hind legs, it will reach about in search of food all round. After this discovery, more than a hundred caterpillars were captured during the next few days. In some instances they had bitten holes in the leaves and round the edges, and some were found suspended by a thread. I have seen these pests before on trees, but not in such numbers, nor on an Ivy plant. [The caterpillar was probably the larvæ of Boarnica rhomboidaria, Ed.] *A. T., Birmingham.*

SALADS IN ENGLAND.—Why do English gardeners so much neglect salads? On March 13, I came to Sidmouth, S. Devon, an eminently favoured locality. The hotel is in a grand position, surrounded by choice Conifers, such as Pinus insignis, &c., with Camellias in flower, and a walled-in kitchen garden of 7 to 8 acres, with conservatories, &c. Here the only salad to be seen was Mustard-and-Cress, most ostentatiously served at every meal, as if a great delicacy; but no Lettuce, Endive, or even Celery; no Radishes, nor fresh Mint for sauce. How different from the north of France, where, with a much worse climate, one has, at this time of the year, Radis *rond à bout blanc* served each day at breakfast, and delicious Lettuce salads at every meal. I came on to Falmouth, an even more favoured locality in the midst of private gardens, which not even the Riviera can equal—where one sees Tree Ferns, Palms, Embothrium, Dicksonias, and other very choice plants in full luxuriance. Here I am able to get a little tough Cabbage-Lettuce, and some even tougher Endive, most sparingly served, and that is all. Can it be that the cooks prefer to send to the greengrocer for French Lettuces? I am afraid there is something in this; but the hotel keepers do not give these to their guests. *R. Milne-Redhead.*

AN OLD SEED HOUSE.—I have just met with a catalogue of Dutch bulbs, including Cape and others, issued in 1846 by Westmacott & Co, Seedsmen and Florists, 156, Cheapside, opposite St. Pauls. As I can find no trace of this firm in a trade list published in 1853, I assumed that it had ceased to exist by that time. In looking through this list, it is seen that in those days (regarding the catalogue as a fairly representative one) the double Hyacinths were much more numerous than the single, and but few of the varieties of the former have survived to this day, and even fewer of the single varieties. The only named variety of the vernal Crocus was David Rizzio. There were only eight varieties of early Tulips, and the same of double, while the named varieties of Polyanthus Narcissus were much more numerous than they are in the present day. *R. D.*

MALVERN HOUSE CONSERVATORY, MAPPERLEY, NOTTINGHAM.—The illustration in the last issue of the *Gardeners' Chronicle* was very gratifying to me, as it showed how well Seaforthia elegans had done after the lapse of sixteen years. Great credit is due to Mr. Nicholas German, who designed the Malvern House conservatory and stove, and planted the gigantic Palm; and as a plantsman and orchidist he was exceptionally successful, as he established the Arnot Hill collection, and flowered Odontoglossum Hilli and O. Arnotti for the first time, and carried out the principal features in both gardens. It was a gardening treat to visit either place. *T. Edington, Tortworth Court, Falfield, Gloucestershire.*

PRIMULA OBCONICA AND P. SINENSIS.—Having suffered from the irritation which the leaves of Primula obconica cause when touched, it may be of service to those who, like me, are affected by this plant to know that Condy's Fluid rubbed on the affected parts affords great relief. It may also act similarly when irritation is caused by P. sinensis. *C. S., Ipsden.*

—— With reference to the extract from Dr. Kirk's paper in the *Lancet*, which appeared in the *Gardeners' Chronicle* for March 18, p. 171, I may be permitted to make a few remarks. For several years, whenever I have seen P obconica grown, I have made a point of inquiring if anyone who had to work with the plants felt any ill effect. I have also made enquiries regarding the precise ways in which the sufferers were affected. From what I have learned, I should put down the number of those affected as considerably fewer than 20 per cent. of those who handle or touch this Primula. In the majority of those affected only a severe irritation, more or less temporary, is caused by simple contact. Should working with the plant be persisted in, eczema is frequently produced, and I have been told of at least one case of severe blood poisoning arising from persistently handling the plant. In some instances the simplest touch in brushing past a plant causes very painful irritation. The foreman in one English botanical garden informed me that if his bare arm touched a leaf when he was going along the greenhouse path the irritation produced was so painful that he had to put his arm under a water-tap to soothe the pain. Dr. Kirk's second "fact," viz., "that some constitutions are specially susceptible, while others enjoy immunity" I have proved by several experiments upon myself, without however proceeding to the extreme of the patient who "chewed the flowers and swallowed the juice." I have touched my lips with leaves, stems, roots, and flowers without feeling anything the worse. What I have learned also corroborates what Dr. Kirk says with regard to his patient that "she had handled the plant for one or two years before the first blistering of the lips was experienced. One of my friends cultivated this Primula for at least two years before he felt any evil effects, but he had at length to give up growing it. Dr. Kirk's qualified statement that "apparently the majority of sufferers have been females, although the evidence on the latter point is not decisive," is not confirmed by my experience. It may be that females are more apt to seek medical advice, and that thus more cases, from their sex, have come under the notice of medical men than from among males. I am of opinion that the number of males affected is relatively as high as of females. One would have thought, too, that gardeners, whose hands were hardened with their work, and whose skins were apparently less sensitive, would have been comparatively immune; yet my inquiries lead me to think that soft and tender skins are not more liable to feel the irritation than others. I have been told of a curious case, which I can hardly credit, but which I give for what it is worth. It is that of a traveller who asserts that if he enters a place in which Primula obconica is grown he feels uncomfortable. Whether we are to set this down as a "traveller's tale," or as an instance of some occult influence, it is not for me to say. It is said that it is not even necessary that the plant should be seen before the uncomfortable feeling begins. The tale sounds incredible, yet stranger things have been found to be true. From a gardening standpoint, it is highly desirable that we should have a little more light upon these irritative properties of so valuable a plant. This must be my excuse for the length of this note. *S. Arnott, Carsethorn, by Dumfries, N.B.*

Lonicera Standishi.—Dr. Dammer's remarks on Standish's Honeysuckle, in your late issue, is a well-deserved tribute to its worth. In Essex, I have had it bloom, and in a somewhat shady situation—on the north side of somewhat overhanging tree—as early as the second week in March. It is a quaint plant, as its numerous spreading branchlets become covered with flowers, the fragrance of which is very pronounced and sweet, before a leaf appears. Kept slightly pruned, so as to give it a bushy shape, without giving it too much the clipped, rounded, wretched suburban garden form, it makes a desirable plant for the second row in shrubberies; and even a bed planted with it, dotted with dwarf Arundo donax variegata, edged with Daphne Cneorum, has telling effect during the spring and summer months. *W. E.*

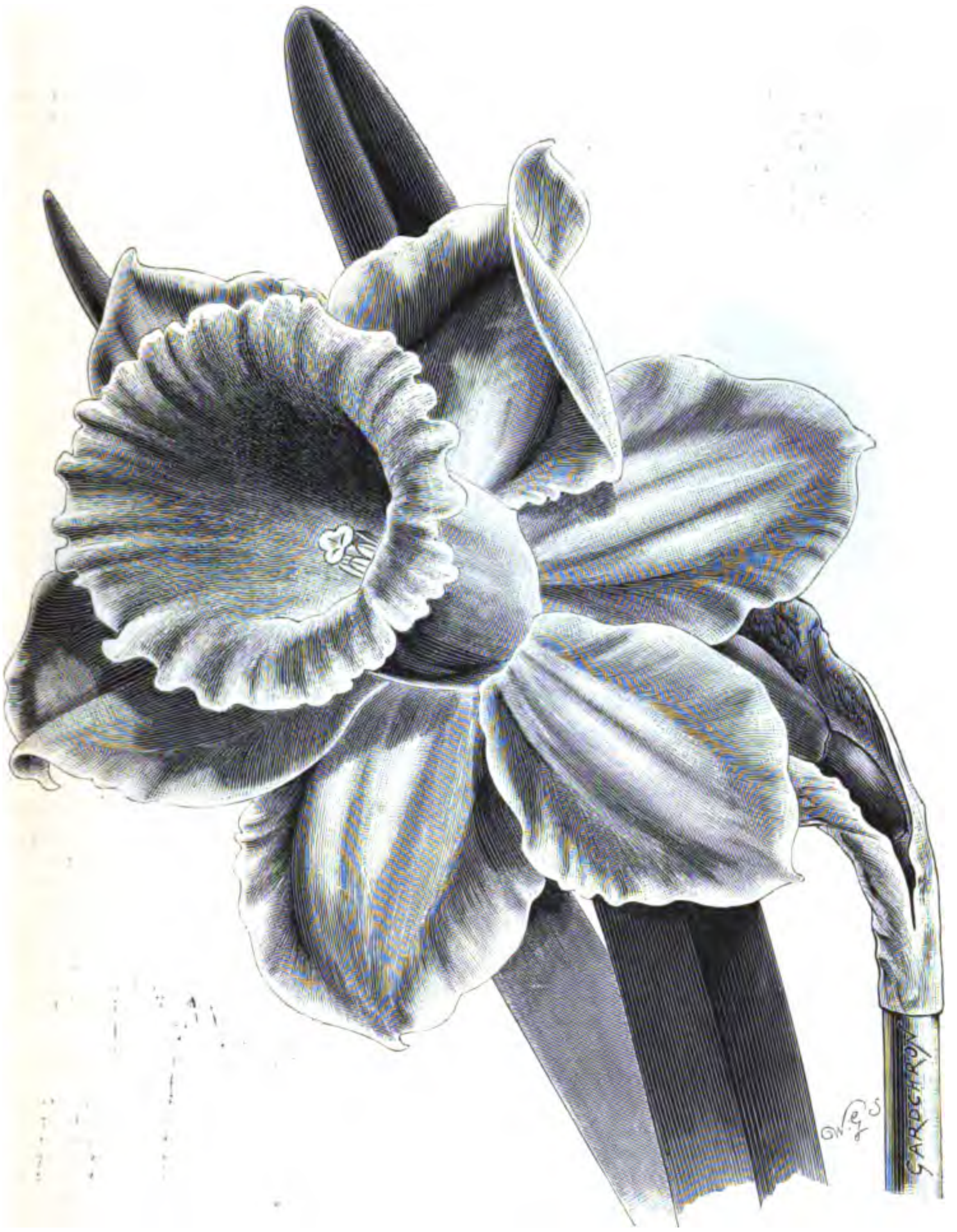


Fig. 84.—Trumpet Narcissus "King Alfred": colour of flowers rich gold.
Awarded a First-class Certificate at the last meeting of the Royal Horticultural Society.
(See Report, on p. 207 of our last issue.)

A few good Camellias.—It is to be very much regretted that these exquisite flowering shrubs should have been ousted from the popularity they once enjoyed by the Chrysanthemum and other plants of more recent introduction, but, although relegated to the background for a time, it is pleasing to see that they are gradually regaining the position they once held and which they so richly deserve, for there are few plants to equal them for conservatory decoration in the early spring months. This being so, a list of a few good varieties may be useful to some who, may be, contemplate planting a few at this season. I give below a list of fifteen varieties which, I think, are deserving a place in any garden. Taking them alphabetically we begin with the old alba plena, which is too well known to need any comment; Beauty of Waltham, pale blush, sweetly pretty, and hard to beat; C. H. Hovey, bright crimson, fine, a free bloomer; Chandleri, rich crimson-scarlet, and, like the foregoing, a free bloomer; delicatissima, blooms like a double Petunia, creamy-white, exquisitely delicate; Duchess, similar to Beauty of Waltham, but deeper in colour, very pretty; fimbriata, like alba plena, but with fimbriated petals; Lady Hume's Blush, softest blush, a great favourite with the ladies; Mathotiana, deep glowing red, massive blooms—a grand thing; also its counterpart, Mathotiana alba, similar in all but colour, which is white, as its name implies; Marchioness of Exeter, rosy-cerise, a grand thing, and worthy a place in any collection, free bloomer; Montironi Vera, very solid, pure white blooms, which show up well against the deep green foliage; Conspicua, rosy pink, blotched with white, a greatly improved Doukelaari; Corallina, rich deep red, very showy; tricolor, flesh-coloured, flaked with a deeper tint of the same colour, a grand acquisition. These last three are semi-double varieties, which are becoming well known, and gaining in favour, and justly so, and should be planted by all who have the requisite space. *E. H. S., Herts.*

MARKET GARDENING IN THE CHANNEL ISLANDS: JERSEY.

(Continued from p. 205.)

Mr. H. Becker's Nursery.—On a busy morning in September last I entered the covered market. The quantity of the Belladonna Lilies on sale was truly surprising, and they were of unusually intense colour. Other hardy flowers included Dahlias, Asters, and diverse herbaceous species. The Pears, Grapes, Figs, and Melons to be had were excellent. Subsequently, when passing through the town, my attention was drawn to some Orchids in flower in the window of a shop in Beresford Street. Upon inquiry, I was informed they were grown at the Cæsarean Nursery, St. Saviour's, to which I was afterwards accompanied by the proprietor, Mr. H. Becker.

This nursery has been entirely remodelled by Mr. Becker since giving up the Imperial Nursery, the famous spot where the late Mr. C. B. Saunders grew so many of the large Pears that years ago made Jersey specially famous for this luscious fruit. When the Cæsarean Nurseries were taken over, many of the pyramidal and bush fruit-trees were moved from the Imperial Nursery and planted at the new place. When firmly established, these and many other trees will doubtless produce fruits equal to any that have been gathered in days gone by. It may appear incredible, but for one fruit of Belle de Jersey Pear Mr. Becker has many times received the sum of 10*s.* and even 15*s.* The care bestowed upon the fruit-trees is evident. The summer shortening of laterals is duly performed, and the centre of the trees are kept sufficiently open to admit the necessary air and sunshine, and when the fruit is set in the spring every encouragement is given to the trees by the application of manures, either as a liquid or as top-dressings. Careful thinning is done, that no ill-formed or inferior fruits may remain. In September, when many of the fruits are well advanced, numbers of them are protected from the ravages of birds and wasps by being enclosed in muslin bags. Similar methods are practiced all over the island.

One's first impressions of Mr. Becker's nursery are agreeable. A broad walk runs right through the grounds, and it is spanned by many arches, which are covered with freely-growing climbers. The land is divided by Privet and Yew hedges. Near to the centre of the nursery is a large dwelling-house, which was then in the hands of the builder, though a part was in use as an office and storehouse for bulbs, rendered necessary by the Daffodil industry. Here Mr. Becker has in contemplation the establishing of a school of horticulture, in some respects similar to those on the Continent. Rooms are being built for a number of young men, who will be taken as appreutices to obtain a thorough knowledge of plant and fruit culture as practised in Jersey. The island is capable of producing a greater quantity of fruit than it has hitherto done.

Immense quantities of Tomatos and Melons are grown here, and the produce shipped to the mainland. Tomatos, naturally, succeed very well out of doors here, but there are houses devoted to them also. A favourite variety is "The Cropper," and its name is a good one, as it is free in setting, produces large clusters of medium-sized fruits, and bears well to the top of the plants, occasionally 8 feet high. The vineries are especially good. A house originally filled with Muscats of Alexandria now accommodates an equal number of Vines of that variety and Appley Towers. No fire-heat is applied to the house, still excellent results are obtained. The varieties Appley Towers and Muscat of Alexandria Mr. Becker intends to grow more largely, but Black Hamburgh and Gros Colmar will not suffer neglect. It is wonderful how well Vines succeed in Jersey, seeing that in many instances no preparations whatever are made when the canes are planted, beyond the simple building of a house and the planting of the Vines in the ground outside. But the roots are subsequently afforded repeated applications of stable-manure or chemical foods.

Of Orchids grown by Mr. Becker may be mentioned Dendrobium Wardianum and D. nobile, Cattleyas Harrisoni, violacea, Gaskelliana, and Mendeli; Cœlogyne cristata, Chysis aurea, Odontoglossum citrosmum, Epidendrum vitellinum major, Oncidium Lanceanum, Cypripediums insigne, barbatum, and leucorrhodum. All of these have proved useful for the supply of cut-flowers. The Red Currant Comet, &c. (figured in *Gardeners' Chronicle*, 1896, Vol. xx., p. 137), I noticed in some quantity. The growth of the bushes is unusually strong and distinct, and the crop of fruit and length of the bunches is said to be astonishing.

In the grounds of the nursery were large quantities of Abies Pinsapo, A. nobilis, and A. Nordmanniana, Green and Golden-leaved Euonymus in ten thousands, and standard and dwarf Rose-trees are features of the out-of-doors department.

A number of German and Italian prunes are being cultivated, which it is hoped may prove remunerative. The trees are very vigorous, and Mr. Becker has hopes of their ultimate success. If these should be capable of producing fine ripe fruits in September, the season of choice Plums would be considerably lengthened. *From a Special Correspondent.*

A RECENTLY-CERTIFICATED APPLE.

IN our present issue we take the opportunity to illustrate a variety of Apple that was given an award by the Fruit and Vegetable Committee of the Royal Horticultural Society on March 14. ALLEN'S EVERLASTING (fig. 83), is a fairly old variety, of about medium size and regular outline. The large and open eye is set in a moderately deep basin, while the slender stalk, rather more than half an inch long, is also set in a wide and deep cavity. In colour, the fruit is green, with but few streaks of red, but the green becomes yellowish as the fruits ripen. Primarily a dessert Apple of rich flavour, it is also a good kitchen fruit, and keeps well until June. The award, now somewhat tardily given, was a First-class Certificate, the specimens being shown on that occasion by Mr. J. Masterton, Weston House Gardens, Shipston-on-Stour. The fruits we have figured were kindly supplied us by Messrs. Geo. Bunyard & Co., Maidstone. It may be interesting to add that there were thirteen dishes of this variety exhibited at the Apple Congress, held at Chiswick, in 1883.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

Present: H. J. VEITCH, Esq., in the Chair; Dr. Müller, Rev. W. Wilks, Rev. G. Henslow, Hon. Sec.; Visitor, Mr. Lees.

Flow of Sap in a Sycamore during Frost.—Mr. T. R. Bruce, The Old Garrsop, New Galloway, sent the following communication:—"I noticed icicles hanging on a newly-cut branch during the whole of last week, and steadily increasing, although the mean temperature of the week was only 30°. The mean temperature of March 24 was only 25·7°. The cut-branch would be about half-an-inch in diameter, and some pounds weight of icicles, or pints of sap, have flowed out during the week, and it still continues to flow. The maximum and minimum temperatures were as follows:—19th, 42·5°, 21°; 20th, 42·5°, 23°; 21st, 38·5°, 15°; 22nd, 38°, 21·5°; 23rd, 37·5°, 21·5°; 24th, 40°, 11·5°; 25th, 43°, 23°."

Aberrant Forms of Narcissus.—Mrs. F. M. Cooper sent some flowers—partly fasciated, partly double, and with coherent ovaries, &c., not unusual sports under cultivation.

Carnations and Chrysanthemums attacked by insects, &c.—Mr. Lees, of Trent Park, New Barnet, exhibited specimens of Pinks and Chrysanthemums, which were forwarded to Mr. McLachan and Mr. Michael for examination.

Hybrid Narcissi.—With regard to the spontaneous hybrid sent to the meeting on March 14 by Rev. C. Wolley-Dod, Mr. Henslow stated that the pollen was quite shrivelled and probably useless, as Mr. Wolley-Dod had found to be the case with other hybrid Narcissi. He sent also a spontaneous hybrid between N. triandrus and the Daffodil. The pollen of this also proved quite effete. He also sent flowers of N. Johnstoni, a supposed species intermediate between N. triandrus and the Daffodil, but it resembled the latter much more closely than the one mentioned above, as the corona was almost exactly that of the Daffodil, but of a paler yellow. The pollen proved to be very bad, but still many grains were apparently quite perfect. Mr. Wolley-Dod says that "it is found in various forms, having established an independent existence over large areas of Portugal and N.W. Spain." He adds that it has never been known to seed. The variety sent is called "Queen of Spain," and is the most abundant.

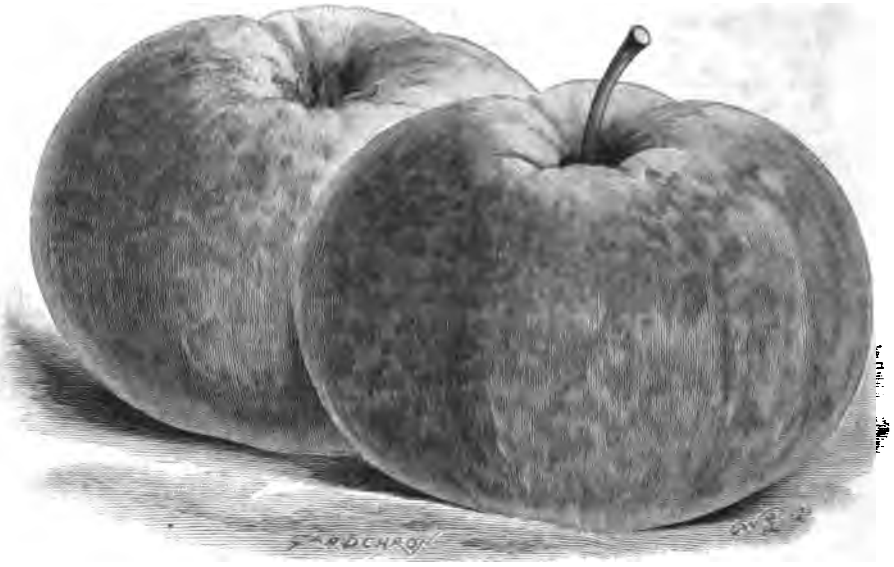


FIG. 83.—DESSERT APPLE, "ALLEN'S EVERLASTING."

PEOPLE'S PALACE HORTICULTURAL.

MARCH 25.—The East End amateur gardeners made an excellent display, the season considered, on the above date.

Hyacinths, in collections of six and three, and the classes for plants of different coloured varieties, as well as three bulbs in a pot, brought a most creditable display; and the same may be said of Narcissi and Tulips. Not less praiseworthy were the pots of Polyanthus Narcissi, and single and double trumpet varieties. It was just a little early for the Tulips, still some very good blooms were staged. There were collections of flowering plants, chief among them Azaleas, Cinerarias, Richardias, &c.; and collections of foliage-plants were remarkably good.

READING GARDENERS'.

MARCH 27.—At the fortnightly meeting, on the above date, "The Arrangements of Hardy Plants in the Garden" was the subject of a lecture given by Mr. ALEXANDER WRIGHT, of Falkland Park Gardens, South Norwood.

Mr. Wright pointed out that no branch of gardening was so important as that of the arrangement of plants in gardens, and as it was such a large question, he would treat it under three headings, viz.:—First, Trees; second, Shrubs; third, Herbaceous and Alpine Plants and Bulbs.

Practical hints were given as to the arrangement of varieties, harmony of colour, and positions most suitable for planting. The system of "massing" was recommended in place of that of "dotting," and of making selections of plants instead of collections. A very animated discussion followed, in which the question of massing gave rise to much controversy and difference of opinion.

Mr. STANTON, of Park Place Gardens, Henley-on-Thames, exhibited some splendid heads of Sutton's Commodore Nutt Lettuce, its compact appearance recommending it as a first-rate variety for frame-work.

THE NURSERYMEN, MARKET GARDENERS', AND GENERAL HAILSTORM INSURANCE CORPORATION, LIMITED.

MARCH 27.—The fourth annual general meeting of the above Corporation was held at Simpson's, Ltd., Strand, London, on the above date. Mr. Harry J. Veitch presided, and there was a good attendance of shareholders. The Chairman gave some interesting figures, showing the growth of the premium, income, and business, as follows:—

Year 1895–6:—Policies in force, 235; premium income, £681 1s. 9d.; square feet covered, 10,408,161; value insured, £135,215 16s.; claims paid, £288 17s. 4d.

Year 1896–7:—Policies in force, 346; premium income, £889 11s. 5d.; square feet covered, 13,886,095; value insured, £179,366 11s. 1d.; claims paid, nil.

Year 1897–8:—Policies in force, 550; premium income, £1360 17s.; square feet covered, 20,098,104; value insured, £263,590 19s. 1d.; claims paid, £1532 17s. 5d.

Year 1898–9:—Policies in force, 749; premium income, £1736 0s. 6d.; square feet covered, 25,619,760; value insured, £343,439 7s. 8d.; claims paid, nil.

The working expenses had been reduced from £40 10s. 8d. per cent. of the income in 1895-96 to £22 9s. per cent. in 1898-99. The whole of the cost of formation of the corporation (£399 4s. 4d.), and of furniture (£40 7s. 8d.), has been written off. £650 had been set aside as reserve for unexpired risks. The report was unanimously agreed to, as was the recommendation of directors, that a dividend of 5 per cent. for the year, and a bonus of 5 per cent. be paid, and that £200 be placed to the reserve fund, and the balance carried forward. At an extraordinary general meeting, held immediately after the annual general meeting, it was resolved that a further issue of 5000 shares of £5 each be made at a premium of 4s. per share, and that £1 4s. be called up between now and June 1, 1899. This will make the subscribed capital £50,000, and the paid up capital £10,000. The premiums on new issue will go to the reserve fund.

ISLE OF WIGHT.

APRIL 1.—The Isle of Wight Horticultural Improvement Association held their third annual non-competitive exhibition of Daffodils and spring flowers at Ventnor on the above date.

Being Easter time, the local gardeners, unfortunately, could not render the assistance which they wished, but still the standard of excellence reached in the previous year was well maintained, and Messrs. BARR & SONS showed 200 vases of Narcissus, thus affording the gardeners of the island a standard at which to aim in the cultivation of Narcissus. The Isle of Wight is a place admirably suited for the cultivation of these lovely spring flowers.

The chief exhibitors were Messrs. W. W. SHEATH, W. RUSSELL, A. J. COLE, C. SMITH, W. S. BARNES, and G. HONEYBOURNE.

The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.					Rainfall.			Bright Sun.	
	Above (+) or below (−) the Mean for the week ending April 1.	Accumulated.								
		Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.	More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	2 +	17	16	+ 17	− 32	17 +	60	13·8	14	23
1	2 +	31	17	+ 16	− 11	7 +	53	8·4	19	20
2	3 +	38	10	+ 93	− 84	0 aver	49	5·3	14	28
3	5 +	49	6	+ 100	− 145	1 −	46	4·6	22	30
4	6 +	53	1	+ 112	− 103	1 −	44	7·1	22	34
5	5 +	52	0	+ 133	− 151	3 −	38	6·0	23	38
6	4 +	32	0	+ 39	− 46	13 +	57	13·3	17	26
7	5 +	44	0	+ 112	− 108	2 +	51	9·0	26	32
8	5 +	55	0	+ 121	− 99	3 −	49	12·4	26	36
9	6 +	52	0	+ 57	− 45	4 +	62	9·0	18	31
10	7 +	70	0	+ 88	− 33	2 +	51	12·5	29	33
*	4 +	64	0	+ 222	− 59	4 −	48	8·1	35	41

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending April 1, is furnished from the Meteorological Office:—

"The *weather* during this period was mild, and unsettled very generally, with frequent and considerable falls of rain in the west and north, and occasional slight falls in the more southern and eastern parts of the kingdom.

"The *temperature* was above the mean, the excess ranging from 2° in 'Scotland, N., and E.,' to 6° in the 'Midland Counties,' and 'Ireland, N.,' and to 7° in 'Ireland, S.' The highest of the maxima were recorded, as a rule, on April 1, and ranged from 66° in 'England, S.,' and 65° in the 'Midland Counties,' and 'England, S.W.,' to 57° in 'Scotland, W.' The lowest of the minima were registered on the 26th, when they ranged from 26° in 'Scotland, N. and E.,' and 29° in 'England, E.,' to 40° in the 'Channel Islands,' and 41° in 'Ireland, S.'

"The *rainfall* greatly exceeded the mean in Scotland, especially in the west and north, and to a lesser extent over Ireland and in 'England, N.W.,' but in almost all the English districts the fall was less than the normal.

"The *bright sunshine* was deficient in all parts of the kingdom, the percentage of the possible duration ranging from 35 in the 'Channel Islands,' and from 23 in 'England, N.W. and S.W.,' to 14 in 'Scotland, N.,' and 'England, N.E.'"

GARDENING APPOINTMENTS.

Mr. Robert Galbraith, for the last five years Gardener to **Ed. Martin**, Esq., at Heathfield, Wimbledon, S.W., as Gardener and Overseer to **Alex. Wylie**, Esq., M.P., Cordale, Renton, N.B.

Mr. W. Henry Cork, as Gardener to Captain **Grassiot**, R.N., Hampton Lodge, Seale, Farnham, Surrey.

Mr. William Williams, late Gardener at Guilsborough Grange, as Gardener to **C. E. Paget**, Esq., Great Houghton House, Northampton.

Mr. G. E. Moorman, as Gardener to Lieut.-Col. **Gaskell**, Rose Leigh, Woolton, Liverpool.

Mr. W. Dearling, for four years Foreman in Messrs. **Hugh Low & Co.**'s nurseries, Clapton, as Gardener to **F. H. Johnston**, Esq., Green Bank, Plumbley, near Knutsford.

Mr. George Impett, formerly General Foreman at Tongswood, Hawkhurst, as Head Gardener to **W. C. Cripps**, Esq., The Lawn, Camden Park, Tunbridge Wells.

Mr. John Gosswiler, Assistant in the Garden Department, Hyde Park, has been appointed by the Portuguese Government to take charge of the Government Gardens in the province of Angola.

MARKETS.

COVENT GARDEN, APRIL 6.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Arbor Vitæ, p. doz.	12 0–36 0	Ferns, small, per 100	4 0– 6 0
Aspidistras, p. doz.	18 0–36 0	Ficus elastica, each	1 0– 5 0
— specimen, each	5 0–10 0	Foliage plants, var., each	1 0– 5 0
Dracænas, various, per doz.	12 0–30 0	Lycopodiums, doz.	3 0– 4 0
— viridis, p. doz.	9 0–18 0	Marguerite Daisy, per dozen ...	6 0– 8 0
Euonymus, various, per dozen ...	6 0–18 0	Myrtles, per doz....	6 0– 9 0
Evergreens, in var., per dozen ...	6 0–24 0	Palms, various, ea.	1 0–15 0
Ferns, in variety, per dozen ...	4 0–12 0	— specimens, ea.	21 0–63 0
		Scarlets, per doz.	6 0– 8 0

Cut Flowers, &c.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Anemones, dozen bunches	1 6– 2 0	Marguerites, p. doz. bunches	4 0– 5 0
Arum Lilies, dozen blooms	4 0– 6 0	Maidenhair Fern, per doz. bunches	6 0– 9 0
Asparagus "Fern," bunch	2 0– 3 0	Mignonette, per dozen bunches ...	2 0– 3 0
Azalea, white, 12 bunches	3 0– 4 0	Narcissus, White, p. dozen bunches ...	1 6– 2 0
Azalea mollis, per dozen bunches ...	6 0– 9 0	Orchids, per dozen blooms	6 0–12 0
Bouvardias, per bun.	0 4– 0 6	Pelargoniums, doz. bunches	4 0– 6 0
Camellias, per doz. blooms	1 6– 2 0	— scarlet, per doz. bunches	6 0– 8 0
Carnations, per doz. blooms	1 6– 3 0	Roses (indoor), per dozen	1 6– 2 0
Daffodils, doz. bun.	2 6– 4 0	— Pink, per dozen	4 0– 6 0
Eucharis, per dozen	3 0– 4 0	— Tea, white, per dozen	2 0– 3 0
Gardenias, per doz.	4 0– 8 0	— Perle, per doz.	1 0– 2 0
Geranium, Scarlet, per doz. bunches	6 0– 8 0	— Safrano, p. doz.	1 6– 2 0
Hyacinths, Roman, per doz. bunches	4 0– 6 0	Smilax, per bunch	2 0– 3 0
Jonquils, doz. bun.	1 0– 2 0	Tuberoses, 12 blms.	0 8– 1 0
Lilium longiflorum, per dozen ...	6 0– 9 0	Tulips, per dozen...	0 6– 1 8
Lily of the Valley, dozen bunches ...	6 0–10 0	Violets, per dozen bunches	0 6– 1 6
		— Parma, bunch	2 0– 2 6

Vegetables.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ...	2 0– 3 0	Mint, new, forced, per doz. bunch., according to size of bunches	6 0–10 0
— Jerusalem, per sieve	1 6– 2 0	Onions, Egyptian, cwt. bag ...	6 0– 6 6
— Stachys or Chinese, lb...	0 4 —	— English, cwt...	5 0– 6 0
Asparagus, Paris, green	4 0– 5 0	— French, bags..	4 0– 4 6
— Giant, bundle..	10 0–12 0	— New, bunches.	4 0– 5 0
— Toulouse ...	3 0– 4 0	— Valencia, cases	9 6–10 0
— Barcelona ...	1 6– 1 9	— picklers, sieve	2 0 —
— Italian bundles	1 6– 1 9	Parsley, per dozen	4 0– 5 0
— Spanish, bund.	1 6– 1 9	— sieve	1 6– 5 0
— Sprue	0 9 —	Parsnips, per dozen	0 8– 0 9
— English, per 100	4 0– 5 0	— cwt. bags ...	5 6 —
Beans, Dwfs., Channel Islands, lb.	0 9 —	Peas, Channel Islands, in handle baskets, lb. ...	1 3– 1
— — English, lb.	0 8– 1 0	— Frame Telephone, lb. ...	1 6– 1 9
— — Long Pods, in flats	3 6 —	— French flats ...	5 0 —
— Madeira, bkt.	2 6– 3 6	Potatos, Snowdrops, Up-to-Date, &c., per ton ...	55 0–95 0
Beetroots, per dozen	0 6– 0 9	— New Algerian Kidneys, cwt.	13 0–14 0
— bushel	2 0– 3 0	— — Frame, per lb.	0 3–0 3½
Broccoli Sprouts, per bushel ...	3 6 —	— — Teneriffe, per cwt. ...	10 0–14 0
— bags	6 0 —	Radishes, Round, breakfast, per dozen bunches	0 6– 0 9
Cabbage, tally ...	5 0– 7 0	— Long, per doz. bunches ...	0 8– 1 0
— Coleworts, per bushel ...	3 0– 4 0	Rhubarb Natural, per dozen ...	4 0– 5 0
Carrots, new French, per bunch ...	0 8– 1 0	— York, per doz. bundles ...	1 9– 2 0
— washed, in bags	3 6 —	Salad, small, punnets, per dozen	1 3 —
— unwashed ...	2 6 —	Scotch Kale, bushel	3 6– 5 0
— Surrey, bunches doz	2 6 —	Seakale, per dozen punnets ...	10 0–14 0
— French flats ...	2 0 —	Shallots, per cwt....	18 0 —
Cauliflowers, per dozen	1 0– 2 3	Spinach, French, crates	3 6– 5 0
— Cornish, crates	8 0–10 0	Tomatos, new English, per lb.	1 0 —
Celeriac, per dozen	2 3– 3 0	— Canary, boxes..	2 0– 3 6
Celery, Red, dozen bundles ...	8 0– 12 0	Turnips, Eng., per doz. bunches ...	3 0– 4 0
Chicory, per lb. ...	0 4 —	— in bags... ...	3 6 —
Cress, doz. punnets	1 6 —	— New French, p. bunch	0 8–0 10
Cucumbers, per doz.	2 6– 4 0	Turnip-Tops, bag ...	3 6– 4 0
Endive, French, per dozen	2 0 —	— bushel	2 0 —
Garlic, per lb. ...	0 3 —	Watercress, p. doz. bunches ...	0 7 —
Horseradish, New English, bundle	2 6 —	Yams from Canaries, case	6 0 —
— — loose per doz., fine ...	1 9 —		
— Foreign, per bundle.. ...	1 3 —		
Leeks, doz. bunch.	2 0 —		
Lettuce, Cos, per doz.	3 6– 4 0		
— Cabbage, dozen	1 6– 1 9		
Mushrooms, house, per lb.... ...	0 8 —		

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, Beefings, per bushel ...	5 0– 8 0	Grapes, Gros Colmar	4 6– 5 6
— Tasmanian cases, French Crab, New York Pippin, Sturmers, Prince Bismarck, &c., per cases ..	12 0–18 0	— Almiera, doz. lb.	15 0–18 0
— — Crabs, bush.	5 0– 8 0	— Belgian A., lb.	4 0– 4 6
— — large cookers, cases... ...	9 0 —	— Belgian B., lb.	3 0– 3 6
— Nova Scotia Russets and Nonpariels, per barrel ...	19 0–23 0	— Belgian C., lb.	1 6–1 10
— Californian Newtowns, New York Pippins, &c., per case ...	11 0–15 0	— Cape, large cases, Black & White, 18 lb.	18 0–20 0
Bananas, per bunch	7 0–10 0	Lemons, per case...	8 0–15 0
Cob nuts, per 100 lb.	32 6 —	Lychees, Chinese, packet, 1 lb. ...	1 6 —
Cranberries, American, box ...	11 0 —	Oranges, Jaffa, cases ...	12 0–13 0
— Russian, kegs...	1 6 —	— Denia, case of 420	15 0 —
Figs, per dozen ..	5 0–10 0	— Tangierine, per hundred ...	8 0 —
		— Blood, 288 ...	9 6 —
		— Valencia ...	14 0–21 0
		— Seville Bitter, per case ...	5 0 —
		Pears, Californian, case Easter Beurré ...	10 0–15 0
		Pines, St. Mich., each ..	2 6– 4 6
		Strawberries, per lb. ...	4 0– 5 0
		— Seconds ...	2 0– 3 0

Potatos.

Saxons, Snowdrops, Maincrops, &c., 55*s*. to 75*s*. per ton; Up-to-date, 80*s*. to 90*s*. do.; Dunbar Maincrops, 85*s*. to 95*s*. Seed in variety. *John Bath*, 33 & 34, *Wellington Street*, *W.C.*

Remarks.—The new consignments of Tasmanian Apples appear in good condition, fresh and healthy; home-grown Apples are now practically over; Oranges are coming to hand wastey, some very bad; this week, I think, will finish the French Apples, which have been coming very good. Asparagus is now arriving in variety, both as to size of heads and quality, also size of bundles, which vary considerably.

FRUIT AND VEGETABLES.

Glasgow: *April* 5.—The following are the averages of the prices recorded since our last report:—Lemons, 6*d*. to 1*s*. per dozen; Nuts, Cobs, 4*d*. to 8*d*. per lb.; Prunes, 6*d*. to 8*d*. do.; Apples, Canadian Spy, 14*s*. to 18*s*. per barrel; Western State Russets, 18*s*. to 20*s*. do.; Oranges, 4*d*. to 8*d*. per dozen; Grapes, home, 2*s*. to 4*s*. 6*d*. per lb.; do., foreign, 6*d*. do.; Tomatos, Guernsey, 4*d*. to 8*d*. per lb.; do., Scotch, 5*d*. to 8*d*. do.; Parsnips, 5*s*. per cwt.; Leeks, 1*s*. 9*d*. to 4*s*. per dozen bunches; green Mint, 6*d*. per lb. bunch; Onions, 4*s*. 6*d*. to 5*s*. per cwt.; do., Portugal, 10*s*. to 13*s*. 6*d*. per case; Carrots, 2*s*. 9*d*. to 4*s*. 6*d*. per cwt.; Cucumbers, 4*s*. 6*d*. to 6*s*. per dozen; Lettuces, round, 1*s*. 6*d*. per dozen; Radishes, 1*s*. 6*d*. per dozen bunches; Horseradish, 1*s*. 9*d*. to 2*s*. per bundle; Mushrooms, 1*s*. to 1*s*. 3*d*. per lb.; Beetroots, 6*d*. to 7*d*. per dozen; Mustard and Cress, 3*d*. per punnet; Turnips, 2*s*. 6*d*. per dozen large bunches; Broccoli, 2*s*. to 2*s*. 6*d*. per dozen Seakale, 1*s*. 9*d*. to 2*s*. per bush; Celery, 1*s*. to 2*s*. per bunch.

Liverpool: *April* 5. — *Wholesale Vegetable Market*. — Potatos, per cwt., Maincrop, 3*s*. 4*d*. to 4*s*.; Bruce, 3*s*. 3*d*. to 3*s*. 9*d*.; Champion, 2*s*. 10*d*. to 3*s*. 4*d*.; Turnips, 8*d*. to 1*s*. per dozen bunches; do., Swedes, 1*s*. 4*d*. to 1*s*. 6*d*. per cwt.; Carrots, 3*s*. 6*d*. to 4*s*. 6*d*. do.; Parsley, 10*d*. to 1*s*. per dozen bunches; Onions, English, 7*s*. to 7*s*. 6*d*. per cwt.; do.; foreign, 2*s*. 9*d*. to 4*s*. do.; Cucumbers, 3*s*. to 4*s*. 6*d*. per dozen; Cauliflowers, 1*s*. 9*d*. to 2*s*. 6*d*. per dozen; Cabbages, 10*d*. to 2*s*. do. *St. John's*.—Potatos, 10*d*. to 1*s*. per peck; do., new, 2*d*. to 6*d*. per pound; Grapes, foreign, 8*d*. to 1*s*. per lb.; Pines, English, 5*s*. to 6*s*. each; Peas, 8*d*. per pound; Cob-nuts, 8*d*. do.; Asparagus, 1*s*. to 1*s*. 3*d*. per bundle; Cucumbers, 5*d*. to 6*d*. each; Mushrooms, 1*s*. 6*d*. per pound, and 1*s*. 6*d*. per basket. *Birkenhead*.—Potatos, 8*d*. to 10*d*. per peck; do., new, 2*d*. to 4*d*. per pound; Peas, 6*d*. do.; Cucumbers, 4*d*. to 8*d*. each; Grapes, English, 2*s*. to 3*s*. 6*d*. per pound; do., foreign, 6*d*. to 10*d*. do.; Mushrooms, 1*s*. to 1*s*. 6*d*. per pound.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending April 1, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.	
	s.	d.	s.	d.	s.	d.
Wheat	35	3	24	11	− 10	4
Barley	27	11	26	2	− 1	9
Oats	17	10	16	11	− 0	11

SEEDS.

London: *April* 5.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to-day's seed market was poorly attended, with but a small business doing. Buyers, just now, are acting with extreme caution, the orders they send up being much smaller than is usual at this stage of the season. Meanwhile, quotations all-round stand at the low level previously noted. Germany is still taking American Red from London. For Tares the sale is slow. There is no important alteration in

Birdseeds, and Mustard and Rape-seed keep firm. Some choice new Scarlet Runners are now obtainable on very tempting terms. Blue Peas and Haricot Beans are held for late rates.

Action of Frost on Leaves of Arum maculatum.—Passing through Knowle Park a few days since, our attention was attracted by the bright yellow tips of the still convolute leaves of Arum maculatum just pushing above ground. On closer examination, it was found that the extreme tips were brown and dry, presumably from the action of frost on the growing point; the upper portion of the leaf below the extreme tip, and about as far back as the middle, was of a rich golden yellow, and the base deep green. It would seem, therefore, that whilst the extreme tip was killed outright, the formation of chlorophyll was arrested in the centre, and the base unhurt by frost, was of its usual rich green colour.

Japanese Plums.—According to a bulletin published by the New York Cornell Station, Mr. L. H. Bailey considers that Japanese Plums are adapted to a much wider range in the United States than are varieties of the domestic type. The Japanese Plums are particularly desirable for earliness, great productiveness, almost complete freedom from black knot and leaf blight, for long keeping qualities, and beauty of fruit. In quality, however, they are inclined to be inferior to the domestic varieties. If for New York late-blooming varieties should be selected, and little damage need then be feared from frost.

More Open Spaces.—Over a hundred years since, in the rear of Guy's Hospital, there existed a "God's Acre" of some repute; it was truly a place for the dead—for the "crunchers" of the period—surrounded, as it was, by open sewers and ditches, this plot fostered disease, and so helped to break down life. To-day it is turned into a place for building up healthy bodies, and every promise given that the rising generation of that ilk shall have in it some of the best thews and sinews on that side of the Thames. Obnoxious as a place for the dead, this spot was transformed into a builders-yard, but it occurring to some that the place was eminently fitted for a recreation-ground, that local authorities and County Council set to work, and on Thursday, March 30, the Nelson Recreation Ground was thrown open amid the cheers of a happy crowd of expectant children. A week or two since, a triangular plot at the junction of Exmouth Street and Rosebery Avenue was given to the locality by the County Council. It was a "remainder over" from a long desired metropolitan improvement, and already gives every evidence of being thoroughly appreciated by those for whom it was set apart.

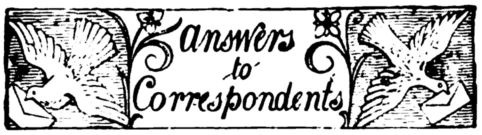
CATALOGUES RECEIVED.

Fredk. W. Kelsey, 150, Broadway, New York, U.S.A.—Hardy Trees and Plants.

W. Goodliffe, M.A., Cambridge Nurseries, Northcourt Road, Worthing—Plants and Bulbs.

J. Cheal & Sons, Lowfield Nurseries, Crawley, Sussex—Dahlias, Chrysanthemums, Carnations, Violas, &c.

J. C. Tissot et Cie., 31, Rue des Bourdonnais, Paris—Horticultural Appliances.



Annuals and Perennials Suitable for a London Garden: *S. S. F.* If the garden enjoys a fair amount of air and sunshine, the following will succeed and afford flowers as long as annual plants endure. Asters in great variety, especially the Crown, Cocardeau, Pæony-flowered, and Truffaut's pyramidal; Zinnias; both tall and drawf; Salpiglossis, Balsams, Celosias in variety, Amaranthus caudatus, Castor-oils, German tenweek, East Lothian intermediate, and numbers of new varieties of Stocks; Sweet Sultan, in three colours; Petunias, Nicotiana affinis, Didiscus cœruleus. The above should be raised in a hot-bed having a night temperature of 60° to 62°, and one by day of 70°, with air afforded. Hardy annuals for sowing on the open border may consist of such of the following as may be suitable to the size of the borders. Acroclinium, double and single flowered vars.; Arabis albida, A. alpina, Bartonia aurea, Brachycome iberidifolia, Calandrinia in var., Calendula officinalis Meteor, Sulphur Crown and others; Coreopsis, many vars., dark crimson, yellow, brown, &c.; Candytuft in var., Lobel's Catchfly, Chrysanthemum carinatum, C. coronatum, C. tricolor, Burridgeianum, and others; Clarkias in var., Collinsias, Dianthus diadematus, D. Heddewigi, and others; Eschscholzia californica, E. crocea, E. Mandarin, &c.; Eutoca viscida, Godetias in var., Lavatera trimestris, Larkspurs in var., Malva moschata, Meconopsis cambrica, Myosotis (Forget-me-not) various; Mignonette in var., Nasturtiums, tall and dwarf; Poppies in much variety, besides perennial species; Sweet Peas, mixed or separate varieties; Tagetes pumila, and T. Golden Ring; Virginian Stock.

Celery for Stewing: *E. H.* The best would be a variety that possessed short, thick sticks, say, Crystal White, Sandringham White, or Col. Clarke's Red. These varieties being comparatively dwarf, can be blanched to their full length in a short space of time after reaching full size. Grow them in rich soil, and never allow it to lack water, and the sticks will be crisp and "short."

Cucumbers: *J. L.* Finding no traces of eelworms on the roots sent, which, on the contrary, were quite normal, we must infer, from the appearance of the fruit, that it is really an instance of "rust." This disfigurement of a Cucumber, or a bunch of Grapes, may be brought about by letting hot vapour impinge on the skin, and also by admitting frosty or very cold currents of air to the forcing-house.

Dendrobiums: *Veritas.* All the Dendrobiums you mention require a high temperature and much moisture from now onward until the growths are completed, especially D. atro-violaceum.

Diseased Cypripedium: *J. D., Tooting.* This is another case of the root-disease of Orchids, referred to in *Gardeners' Chronicle*, April, 1898, p. 206. It also seems similar to specimens sent by you previously, without roots (*Gardeners' Chronicle*, June, 1898, p. 368). The roots have dried up, and no longer do their work. A fungus is present in the outer parts of the root, and it can be traced a short distance into the stems along discoloured tracks. The blackening of the leaves occurs chiefly on the younger ones, and follows the larger veins; this, we think, indicates interference with the water supply, due to death of the roots. The healthy appearance of the older leaves indicates that the plants have started all right, and that the root disease increased in its effects later. The roots need attention, but we do not know of any remedy which will not harm the plants. It is significant that in this and former cases we have seen, only single plants amongst others go wrong; the disease does not seem to be epidemic, yet it is well to isolate plants showing it.

Fern Case: *S. S. F.* The plants which grow with the least amount of trouble to the cultivator are Ferns, and you may also get colour amongst them; but as you desire something more showy, you should grow the ornamental-leaved Begonias, Euonymus japonicus, variegated variety; Vinca elegantissima, Phyllostachys Kumasasa—a dwarf, slender Bamboo; Bambusa pygmæa, and B. tessellata, 1 to 1½ feet; small Golden Privet, &c.

Insects: *R. Mason.* The stick-like caterpillars are those of the Willow Beauty, Boarmia rhomboidaria. They feed on a variety of trees and shrubs. They conceal themselves in any convenient sheltered place during the winter, and commence feeding again with the first warm spring days. As they feed by night, and either lie beneath the branches or stretch themselves straight out from a twig during the day, their presence is usually only detected after some of the leaves have been eaten. The moth is found in June and July.—*R. M. C. J.* We are unable at present to say with any degree of certainty what these eggs are.

Japanese Maples: *A. R.* These are usually worked on stocks of Acer polymorphum, home-raised from stratified seed, or imported as plants. The methods employed are side and whip-grafting. These Maples can also be budded in summer.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—E. J. H.* Ceanothus rigidus, *Bot. Mag.*, t. 4664.—*G. H.* Please address such communications in future to the Editor. It is not an advertisement. 1, Cupressus Lawsoniana, erect variety; 2, Thuya occidentalis var.; 3, Libocedrus decurrens; 4, Thuya occidentalis; 5, Thuya orientalis var.; 6, 6, Tsuga Sieboldi.—*J. R.* 1, appears to be Cœlogyne cristata, Chatsworth variety; 2, C. c. Lemoniana, or that variety of it called intermedia in some gardens.—*J. P. D.* 1, Cattleya labiata Luddemanniana; 2 and 3, forms of Cattleya labiata Schroderæ.—*J. D. A., Suffolk.* 1, Dendrobium aggregatum; 2, Dendrobium chrysotoxum; 3, not found; 4, Dendrobium Pierardi; 5, Dendrobium fimbriatum oculatum. —*W. T.* A very pretty variety of Odontoglossum × Wilckeanum, a natural hybrid between O. crispum and O. luteo-purpureum. You are very fortunate to secure it among imported O. crispum. —*One in Doubt.* 1, Libonia floribunda; 2, Acacia armata; 3, send when in flower; 4, Dioscorea illustrata; 5, Datura species, send when in flower; 6, Pilea muscosa.

Orchids, Various: *Orchid.* The Odontoglossum Hallii xanthoglossum is a good variety; the spotted O. crispum a remarkable variety, worthy of care; Dendrobium flowers are rather small, but the number of blooms on the pseudo-bulb may account for that. If the Dendrobium nobile sent as nobilius is true, it is not grown to perfection. The flowers of Lycaste Skinneri are good, and represent distinct varieties. The Dendrobium, suggested to be D. Griffithianum, seems to be D. chrysotoxum. The others are all good of their kind.

Potted Peach-trees Casting their Leaf-buds: *C. N. M.* The deprivation of the trees of the accustomed open-air moisture since they were placed under glass, or dryness of the soil from insufficient application of water, may be contributing causes. The balls should be turned out and examined, and if they are found to be dry, it would be prudent to return them to the pots, and immerse the latter in water for a quarter of an hour. Loamy, firm soil, when once it has got into a dry state, is difficult to moisten without immersion.

Vine Splitting: *T. N.* The heat from the kitchen chimney may have dried up the lately-planted Vine, and the splitting is due to that cause. It is probably past recovery.

Wellingtonia: *G. H.* Without knowing more as to the local conditions, subsoil, drainage, &c., we cannot tell what is amiss with your trees. We find neither insect nor fungus on the specimen sent. The ill-health of the trees may be due to a water-logged soil, to injurious substances in excess in the soil, or to its poverty. If the first, draining off the surplus water by means of ditches, 3 to 4 feet deep, made at 25 to 35 feet apart, or covered drains of that depth consisting of 1 to 1½ feet of stones covered with first, sods, and then the staple. If it is the last, poverty of the soil, it can be improved with leaf-mould, loam, and decayed peat, applied as a top dressing over the roots.

Communications Received.—Barr & Sons.—C. B. P.—R. W. A., Johannesberg.—J. H. H.—J. K. B., Utrecht.—E. W. G.—W. G. S., Leeds.—E. C.—W. Browne.—W. Swan.—J. O'B.—R. D.—S. A.—M. F.—A. D.—E. B.—W. E.—J. J. W.—F. Meyer.—A. H.—B. W.—J. Lowe.

Specimens and Photographs Received with Thanks.—R. W. A., Transvaal.—J. H. H., Trinidad.

Important to Advertisers.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

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THE
Gardeners' Chronicle
No. 642.—SATURDAY, APRIL 15, 1899.

THE GARDEN AT HOLLAND HOUSE.

THIS, the home of the present Lord Ilchester, of the famous Lady Holland of illustrious memory, and of a number of persons distinguished in our annals, stands in a park of about 200 acres, situated between the Uxbridge Road on the north, and Kensington High Road on the south. The mansion stands on elevated ground some 400 yards distant from the latter road. The builder has been busy on the west and east sides, but this notwithstanding, the privacy of the grounds is well maintained by the close screen of ancient Elms and other large trees which form the boundary, and which on the eastern side assume the form of an avenue to the approach-road from the entrance-lodge to the mansion. In the immediate neighbourhood of the latter the trees form almost a wood, and the seclusion is perfect. It may be remarked by the visitor that provision is continually being made for the future by the planting of suitable trees of large growth wherever there is a chance of their succeeding.

We extract from an account of Holland House that appeared in these pages in the issue of July 5, 1881, from the pen of that pleasant writer, the late H. Evershed, the following particulars :—

"The original manor of the De Veres consisted of 500 acres, but more than three-fifths of this wide space have now been built upon. The site of Little Holland House, worth £20,000 per acre, has been long since devoted to the crop which at Kensington exceeds all others in profit. The area of the kitchen garden between the house and Addison Road has been considerably diminished by the erection of a good house, called Oak Lodge, whose ample and ornamental grounds occupy, it is said, the site of the old Manor House, with its moats, or studponds, and of the monastery. The name Addison Road speaks for itself. That of Melbury Road was derived from the name of Lord Ilchester's chief seat in Dorsetshire."

Lord Ilchester is a descendant of the eldest son of the founder of the Fox family. The house forms a square block, and the south is the best side, being relieved with wings and arcades. The walls of the house in some parts are beautified by a chequer work of terra-cotta plaques. The area, about half an acre immediately in the front of the south side, originally sloped, as does the rest of the land on that side to the Kensington road, has been raised to a dead level by building a retaining wall some 40 yards distant from the house, the enclosed space being ornately treated, and the wall embellished by Roses and climbing plants in variety. Fig. 85, p. 227, shows the house on the west side.

The Dutch garden on the west side (fig. 86, p. 229) consists of an intricate design of flower-beds and scroll-work in Box. The Box-plants are said by Mr. Dixon, the present head-gardener, not to have been relaid for 100 years, although "mending" is occasionally found to be necessary. What edging, therefore, can be better than Box for a London garden? The high brick wall on the north side of this garden was once covered with Plum, Peach, and Nectarine trees, which, when the air was less smoke-laden, doubtless brought their fruits to perfection. In front of this sunny wall the poet Rogers loved to stroll.

The poet and the fruit-trees are now but a memory, and in the place of the latter we found a number of uncommon flowering creepers, more perhaps in keeping with modern ideas of appropriateness. It will suffice to mention a few of these exotics that endure our London climate, and withstand our hard winters. Physianthus (Arauja) albens grows freely and bears fruit; the Oriental Laburnum, Piptanthus nepalensis, and Olearia Haasti flower profusely, as they do everywhere in the London district ; Vitis orientalis, a species with foliage very handsome in its autumn garb ; V. purpurea, equally desirable as a plant for covering a wall or an arbour ; Akebia quinata, with its quaint, purple-brown flowers ; Ceanothus Gloire de Versailles, one of the best, and fairly hardy under slight protection ; C. Marie Lemoine, a quite hardy variety, with pinkish flowers ; Solanum jasminoides, which most persons cultivate in the greenhouse, flowers freely, although in some winters it gets cut, but is never killed ; a variegated form of the Japan Hop-plant, pretty as a variety ; Ware's hybrid Passiflora cœrulea, differing but little, if at all, from the type ; that old but recently resuscitated Passiflora Constace Elliott, which has white flowers, and Mühlenbeckia complexa, a shrub that forms a tangle of black wire-like branches, and has small orbicular leaves, grows freely, notwithstanding the fact that it suffers in severe winters. A most interesting wall. There are many other plants tentatively planted, of which it is yet too early to say much.

The bedding-plants in the Dutch parterre bespoke a love for the old rather than a preference for the modern finer varieties of things, and this did not seem at all inharmonious where all around is associated with the past. The beds just under the windows overlooking this garden were laced over with low festoons of Virginian Creeper—a quaint and pleasing idea.

Close by, a doorway in the creeper-covered wall admitted us to the north lawn—a charming space with a surface velvet-like and closely shorn, and dotted at the margins with big trees, and which, moreover, is not disfigured by any walks ; in fact, there was none, excepting that which skirts the mansion. What a treat to the pedestrian used to rustic ways and green fields, who is condemned to tread the stony streets of the metropolis. At a distance of about 80 yards from the wall afore-mentioned, there begins a series of long beds cut in the turf, and spread out like one's fingers, the turfen walks between them being of a good width. This arrangement is the very antithesis of the Dutch garden.

The beds are furnished with herbaceous perennials, hardy bulbs, including many species of Lilium, varieties of Roses, &c. Colonies of one plant are preferred to small patches or groups, and sometimes entire beds are filled with one species, whilst others have several ; in fact there reigns throughout a sort of orderly confusion, the needs of each kind of plant receiving suitable recognition ; and the plan being carried out on a big scale, the effects in the spring, summer, and autumn, must be very satisfying.

Of beds planted with one or two species of plants, some were noted in which were Bamboos, Epimediums, Lilium croceum, and L. dahuricum ; golden-leaved Japanese Privet, and Prunus Pissardi ; Roses, Caroline Testout and La France, and the red variety of the latter called "of 1889," which succeeds capitally ; and Cistus Florentinus, which is quite hardy here, whilst other species of Cistus are not, forms good-sized shrubs. There were beds of Comptonia asplenifolia—a nice shrub ; of M. Lemoine's new varieties of Philadelphus (Syringa) ; of Alstrœmerias in different species, which are employed in conjunction with Lilies, the flowering of the former forming a succession to the latter. This struck us as being a happy combination, and the planting once properly done, no disturbance of the bed is needed for several years—in fact, is undesirable. A border of mixed varieties of the Rose is backed with plants of Helianthus flore-pleno Soleil d'Or, the Roses consisting of Teas, H. P.'s, and others.

The avenues of certain kinds of plants form a novel feature : for instance, there is one of Weigelas ; another of the newest and best varieties of scarlet-flowered Thorns ; another of Pavias, and yet another of Mock Orange (Philadelphus), and so on. It would appear that more of this sort of planting is contemplated. The method of treatment is as follows : a piece of hitherto wild ground is skimmed of the turf, which is stacked on an adjacent spot, so as to be handy for use when decayed. The land is then well manured and dug, and seeds of Poppies and the common Foxglove are sown together. The Poppies bloom the first, and the Foxgloves the next and the third year. The land is at the end of this term again dug and planted with shrubs, or with Narcissus and other hardy bulbs, and permitted to assume its original wild character as before. Sometimes, at this stage, various British plants are set out, as Epilobium, &c., and allowed to take possession of the land. Nothing is kept too trim in these patches, the charm of semi-wildness being constantly borne in mind.

We observed Lilies, Gladiolus, Iris Kæmpferi, Delphinium, and Galtonia (Hyacinthus) candicans, planted by the hundred ; also beds of mixed species of Lilium, those of the old world being exclusively chosen, as Californian species refuse to thrive. These Lily-beds have superficies of 100 to 150 square yards apiece.

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

IRIS TUBERGENIANA, *Sp. n.*

I HAVE received from the firm of C. G. Van Tubergen, Junr., a little Iris, whose characters seem to justify specific distinction. It is allied to I. caucasica and I. orchioides, but differs from both. Bulb somewhat slender, with the ordinary characters of a bulb of a Juno Iris. Plant about 10 cm. high at flowering time, with one, two, or more apparently sessile flowers. Leaves about six, each 6 to 8 cm. by 1 to 5 cm. at broadest, light glaucous green, pointed, conspicuously striated, and with a marked "cartilaginous" margin. Spathe valves 4 or 5 cm. long, narrow pointed, not inflated, thin, but-green, membranous at tip only. Fall about 4 cm. long, rather more than 1 cm. at its broadest part. The claw bears lateral expansions, so that the whole fall is more or less fiddle-shaped. The fall possesses a median crest, which along some distance back from the extreme front is cut up into conspicuous filaments, 1 cm., or nearly so, in length, so that the crest becomes a linear beard. Standards minute, three-toothed, the median tooth being usually longest, stretched out horizontally. Style nearly 3 cm. long by about 1 cm. broad, with a conspicuous tongue-shaped stigma, and two large deltoid crests.

*

Anthers large, pollen coarse and abundant. Ovary, rounded trigonal, rather more than 1 cm. long; tube, three or more times as long as the ovary. The falls are bright yellow, especially the crest and beard, but with a slight tinge of green. As in I. orchioides, the blade of the fall is marked by a few scarce variable blackish-green streaks or dots. The styles are of a more distinctly greenish-yellow. The plant, without being exceedingly handsome, is pleasing; flowering, as it does, nearly at the same time as the purple Iris reticulata, it supplies an agreeable contrast to these. In foliage and habit it resembles I. caucasica, though the leaves are more glaucous, and more distinctly striated. The flower is like that of orchioides, but differs in the claw having distinct lateral expansions (these are wholly absent in orchioides), and in the crest, which in orchioides is often hardly even serrate (in caucasica it is often very serrate), being cut up into a conspicuous linear beard. The two features seem to justify its being regarded as a distinct species. The conversion of the crest into a beard, though useful in this case for specific distinction, is one of many instances showing how little value can be attached to the possession or lack of a beard or crest as a fundamental character, and so a means of forming large groups of Irises.

Diagnosis.—General features of the bulb of the various parts of the plant that of a Juno Iris. Foliage, habit, and general features, exclusive of the flower, the same as in I. caucasica. Flower resembles colour and otherwise that of I. orchioides, except that the claw of the fall bears conspicuous lateral expansions, and the median crest of the fall is cut up into a conspicuous linear beard.

* * * *

I have also received, through the kindness of the same firm, two new hybrid Irises of their own raising.

One I. sindjarensis × I. persica, is a most charming plant, in foliage and flower almost halfway between the two parents. The flower has a fuller colour than the seed-bearing parent, I. sindjarensis, though it has not the conspicuous colour patch at the apex of the fall, which is so marked a colour feature of the pollen-bearing parent, I. persica. The plant is quite dwarf, and exceedingly floriferous. Every one who sees it will, I am sure, want to possess it.

The other is a cross between I. persica type, and I. persica purpurea. It, too, is almost halfway between its parents, and though the purple is of a somewhat lurid hue, the plant is very charming. Both of them, especially the former, supply a welcome addition to the garden. *M. Foster, Great Shelford, March 29.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM INSIGNE LUCIANI.

Clear yellow forms of Cypripedium insigne are much prized, and one of the best of these is C. i. Luciani, a fine flower of which is sent by A. Warburton, Esq., Vine House, Haslingden. The plant will, doubtless, be known to some cultivators by the fine figure in *Lindenia*, xi., p. 53, but the illustration is surpassed by the flower sent by Mr. Warburton, notably by bright yellow taking the place of the green base of the upper sepal. The flower is of an uniform deep chrome colour, except the upper half and margin of the dorsal sepal, which are pure white. A striking feature in the flower is the broad, well-displayed petals.

Yellow Cypripedium insigne are always associated with the famous C. i. Sanderæ, which, when seen at its best, is still the finest variety. Latterly some orchidists report that even this fine form varies not only in the size, but somewhat in the form of the flowers of the same plant at different times, and that lately it has displayed a tendency to produce a few slightly-raised dull purple-brown spots on the yellow of the lower part of the dorsal sepal. A flower of it sent by Mr. Warburton also displays this peculiarity. The plant was said to have been grown in a cold-house. Probably, if assisted with a little more warmth when perfecting and expanding the flowers, the markings, which are viewed in the light of a blemish, would not be developed.

ODONTOGLOSSUM LUTEO-PURPUREUM VUYLSTEKEANUM.

It is always a pleasure to meet with any of the well-marked, rare varieties of Orchids of which but few examples exist, as it proves that the cultivator knows how to deal with them, and to increase their number. A case in point is furnished by the Rev. F. Paynter, Stoke Hill, Guildford (gr., Mr. Cook), who has sent us a fine inflorescence of that remarkable variation in typical O. luteo-purpureum, in which the brown markings are absent, and the whole flower, except the cream-white front lobe of the lip, is pale yellow, with bright orange markings. It puzzled Reichenbach so much, that in the *Gardeners' Chronicle*, 1884, p. 7, he described it is a species under the name of O. Vuylstekeanum, remarking on certain resemblances to O. × Wilckeanum and O. × mulus, which certainly do present themselves, especially in the hawthorn scent of the flower, similar to that noticed in O. mulus. There seems little doubt, however, that it is a seedling sport typical in O. luteo-purpureum, in which the darker colour has been suppressed, leaving a clear yellow flower of two tints, in the same manner that O. l.-p. Masereelianum is transfigured in the O. l.-p. sceptrum class. The whole contour of the flowers, with their spiny crest and broad, crimped, and fringed labellum, makes it a very attractive plant, and its rarity makes it valuable. Forms of O. luteo-purpureum are gaining in favour, and varieties that are beyond average quality fetch high prices.

DENDROBIUM NOBILE SCHRODERIANUM.

This is the largest flowered and most beautiful white D. nobile. In the collection of the late Mr. Gair, of Falkirk, there appeared a similar variety, and flowers of it have been sent us by Mr. Mark Watts, Selwood Gardens, Rotherham, the home of the now distributed Owen collection. D. nobile candidulum figured in *Lindenia*, x., p. 99, is an ally, but with lighter purple base to the lip.

CONIFERS.*

Culture.—From their wide range of distribution, and from being found chiefly in elevated situations where the air is pure, we may deduce two important facts as guides to their successful culture. First, Coniferæ are not over fastidious as to soil; secondly, to flourish they require pure air. Such indeed is the case. Coniferæ generally will grow in almost any kind of soil, provided they receive the requisite amount of moisture; but they flourish in a cool rich sandy loam. These facts are strikingly exemplified by Pinus sylvestris which, as we all know, will grow almost anywhere. It flourishes on sandy loam in the plains, and on mountains of granite and gneiss as in Scotland. On hard-binding soils it is more subject to fungoid diseases; on stiff loam its height suffers; on shallow rocky soil (limestone and chalk) there is a decided tendency towards the malformation of the bole, and it is also dwarfed and short-lived. Other species have peculiarities in habitat, &c., which may be interesting to note:—Pinus Pinaster seems partial to the low, swampy, and salty districts near the sea-shore. P. halepensis, unlike its congeners, appears partial to limestone, though it is not absolutely confined thereto. P. australis and P. Tæda abound on the sterile sand of the famous "Pine barrens" of North America. Larch grows rapidly on the chalk, but does not stand. Golden Yews revel in a clayey soil and shady position. Taxedium distichum should be planted near water. Lastly, for Araucarias and Retinospora section of Cupressus, a light sandy loam is absolutely essential. The abuse of the second "great factor" of success (i.e. pure air), is unfortunately only two well shown by our Conifers at Kew. This, together with the drought in summer, is undoubtedly the cause of our partial failure to grow them.

Conifers may be planted to serve many purposes. For ornamental effect, they stand second to none, either as specimens on lawns, or in groups, or mixed with dicotyledonous trees, anyhow or anywhere, they "head the poll." At Kew, although we cannot boast of specimen Conifers in the sense that Dropmore, Penrhyn Castle, or Hewell Grange can, nevertheless, some of ours give a tolerably good idea of what they can be. Look at the noble aspect of that clump of Cedars over-shadowing the "Temple of Sun," and of the vista of Cedrus atlantica, leading to the Pagoda; or again, the stately grandeur of some of our specimens of Pines, Cedars, &c., such, for instance, as Pinus Laricio, P. pinea, P. Coulteri, Cedrus Lebani, Ginkgo biloba, &c. Furthermore, a visit to our temperate-house will not fail to convince anyone of their value for conservatory decoration, particularly Araucarias and Dacrydiums, which are not quite hardy in this country.

Apart from their ornamental qualities, the larger growing genera (Pinus, Abies, Picea, Tsuga, &c.), are specially adapted for planting as "nurses" to more tender trees (fruit, &c.). Their dense habit, and persistent leafage, is an effectual barrier against the cold, biting east winds, so destructive to fruit trees in spring.

Again, these same large-growing species are indispensable for economic planting in the formation of woods and forests. The veriest tyro is familiar with "Deal" and "Pitch Pine," two of their forms of timber.

Planting may be conducted from the beginning of September to the end of March, weather permitting. In planting Conifers, and, indeed, all trees and shrubs, make the holes sufficiently large so as to admit of spreading the roots out all round. It is a bad beginning to cramp the roots up anyhow at the outset—give them room. Plant firmly, but not too deeply. A barrowload of rough loam in the bottom of the hole, and a little spread over the roots, is excellent medicine, but avoid rank manure in planting. Those needing it should be staked at once, or the wind may damage them. A mulch of litter or lawn-mowings is very beneficial in summer, especially to freshly-planted plants.

After they have become established their wants are few, merely the ordinary attention of arboriculture, that is, the keeping free of choking weeds, the cutting away of dead branches, and the trimming into shape of those for ornamental purposes. If branches of considerable size are removed, a coating of tar should be applied to the wound, as this checks "bleeding," and also prevents decay from water soaking in. The "leaders," too, should be looked after and kept straight, tying to a stake. Sometimes they lose their "leaders," either by accident or otherwise, as is the case with some Abies and Piceas in the Kew collection (A. nobilis, A. concolor). In these cases, the topmost lateral should be tied up to replace the main axis. With the pyramidal-growing species (Irish Yew, species of Thuya, Cupressus, Juniperus, &c.), it is a good plan, where practicable, to go round, after a snowstorm and tap them with sticks to dislodge the snow, this preventing their being broken down by its weight. Lastly, and most important of all, Conifers must never be allowed to suffer from want of water; when freshly planted, this item must have special attention—if once they suffer, they are crippled, if not killed outright.

PROPAGATION.

This may be effected by seeds, grafting, cuttings, or layering—but the first, the natural method, is by far the best; nevertheless, for the variegated forms of certain species, the latter methods are the only reliable means of perpetuating the variety.

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* Extracts from a paper read before the Mutual Improvement Society of the Royal Gardens, Kew, by Mr. E. H. Wilson. The Hooker Prize was awarded to this essay.

Seeds. — The majority of Coniferæ bear seed readily when they arrive at maturity. The seeds are borne in cones, which vary in size from that of a child's head (Araucaria Bidwelli) to a little larger than a good-sized Pea (Cupressus sp.). Generally, by their hygroscopic character, the cones, when ripe, liberate their seeds, and then fall away. The seeds are frequently winged, and this assists in their dispersal by the wind. In Pinus muricata the cones remain attached for many years; this is well shown by specimens in the Kew collection, some of which must be twenty years old.

To obtain seeds for sowing, the cones should be gathered as soon as ripe (or just previous), and placed in a warm dry place. The scales will then separate, and the seeds fall out. The cones of the Firs release their seeds more readily than do many species of Pines (P. pinea, P. Pinaster, &c.), and these should be exposed either to solar heat or to gentle warmth given by oven or kiln. A good and simple method is, in February, to bury the cones a couple of feet in sand, and in a month or six weeks' time the scales will easily fall away; the seeds having swollen must be sown at once. The cones of Cedars are very resinous, and ought to be kept a year before the seeds are separated, in which time the resin will have partially evaporated.

March or April are the best months for sowing the seeds. Seed-beds should be prepared in a shady part of the garden, using a compost of light sandy loam and leaf soil. Make the beds level and rather firm; scatter the seeds thinly and evenly over the bed, and then lightly cover with sandy soil. These beds must not suffer for lack of water. Under such conditions as these, most of the hardy varieties will germinate in eight to twelve weeks from time of sowing, though occasionally some (species of Cupressus and Juniperus) may even take two years to germinate.

The seeds of all the more tender Conifers (Araucarias, Dacrydium, Podocarpus, Widdringtonia, &c.), must of course be sown in heat. Sow in pans or boxes in sandy soil, and place in bottom-heat of about 70° F. When large enough, prick off, and grow on in heat, and finally harden off into a cool-house. For the first two years of their life, Conifer seedlings develop very slowly. It is not until the third or fourth year that they "push." When about 2 inches high, the seedlings in the beds outside should be pricked off into other similarly prepared beds. In winter a "light" (glass), or a few pieces of Yew or Pine-branches stuck amongst them, will break the force of the cold biting north and east winds.

One of the most important items in Conifer-culture is transplanting. On the regularity with which this is performed, much of the future success depends. No Conifer, seedling or cutting, should remain in one position longer than two years, until it can be planted in its final position. Transplanting promotes the development of a mass of fibrous roots. Of course, if a seedling can be planted permanently at onset, so much the better; but this is rarely practicable save in forests. A very striking and remarkable fact is the diversity in form, &c., presented by a bed of Conifers, so much so, that it is often impossible to tell what they are until they are four or five years old. We ourselves have seen seedlings of Abies nobilis looking identical with those of A. concolor, and those of A. concolor apparently identical with those of A. brachyphylla. Again, some of these "seedling forms" often vary so greatly that if their origin were unknown they could be taken for new and distinct species; as examples of this, we have the "Irish Yew," "Erect Lawson," and "Whip-cord Arbor-vitæ," which are only seminal varieties of the common types. Mr. Harry Veitch contends, and it is generally accepted, that all the varieties of Retinospora have sprung from two types — Retinospora (Cupressus) obtusa and R. pisifera. Indeed, I think we may justly say with Dr. Masters, that "the unexplained phenomenon 'polymorphism' is greater in Conifer seedlings than in any group of plants, and perhaps the Cupressus family show it most." *E. H. Wilson.*

(*To be continued.*)

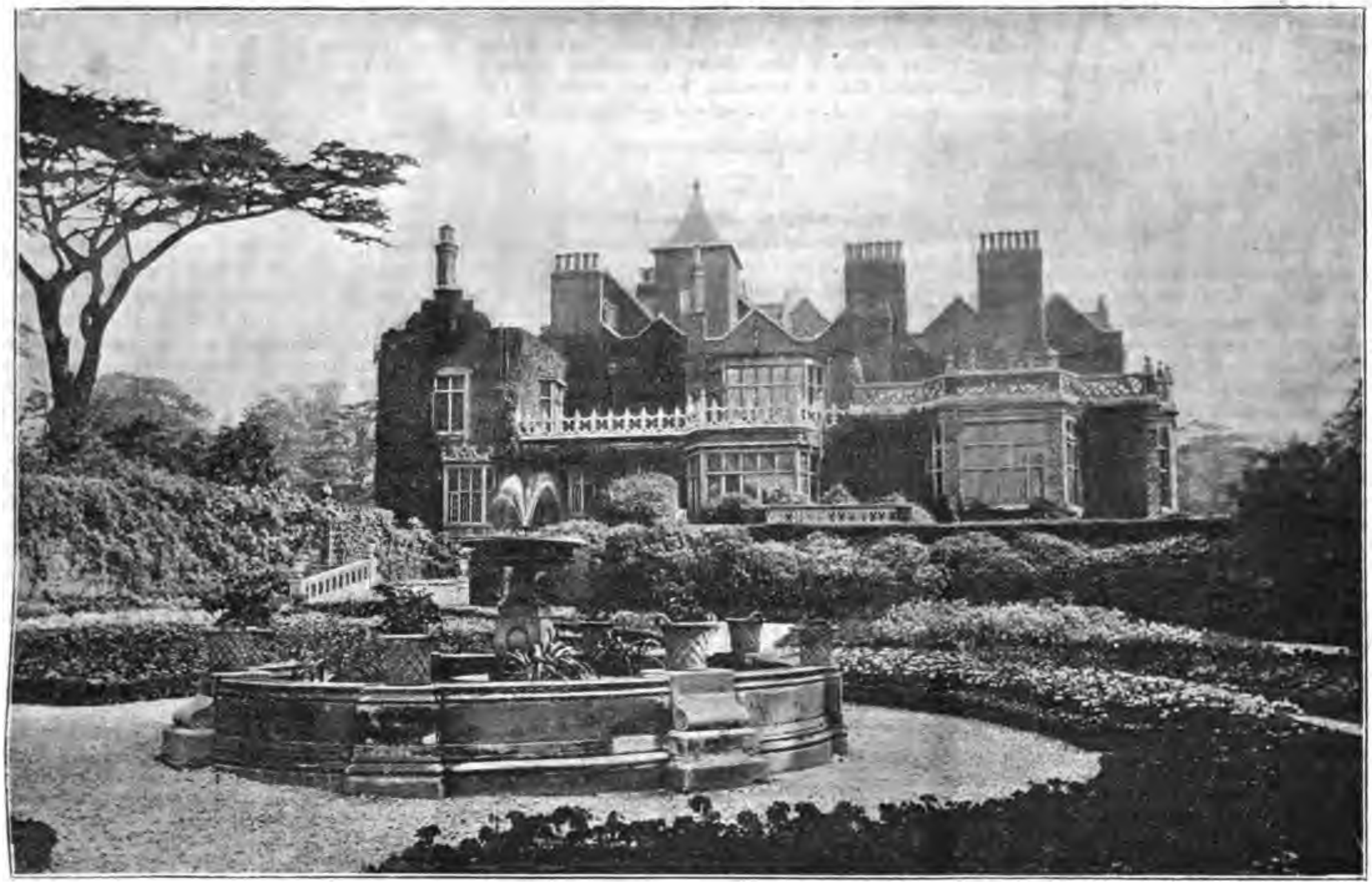


Fig. 85.—Holland House: west front. (See p. 225.)

THE HEPATICA.

(*Continued from p.* 178.)

The double white Hepatica has been a coveted plant, and its existence or non-existence has caused much inquiry and controversy. If we are to believe Ray and Gilbert, it existed in their day, although later Philip Miller wrote in terms which appeared to cast doubt upon their statements. Yet one is disposed to accept the description given by Gilbert of the double white Hepatica in his *Vade Mecum* as true.

A number of years ago a plant of the double blue variety gave an offset with double white flowers in the garden of Mr. W. B. Boyd, of Faldonside, Melrose. Three or four flowers which it produced were taken off and shown to the late Mr. McNab, Curator of the Edinburgh Botanic

Gardens, who remarked, "Well, I have often heard of a double white Hepatica, but I never saw one before." This offset was taken off, but unfortunately too much care was taken of it by covering it with a bell-glass, and it died. In 1893, the manager of the herbaceous department in a North of England Nursery, and in whose veracity I have every confidence, told me that he had seen the double white Hepatica about twenty years before, and that it was in a garden in Perthshire, and also in that of Van Houtte, in Ghent. Three or four years ago (unfortunately, I have not kept a note of the date), it appeared from the replies to correspondents in the *Gardeners' Chronicle* that a flower of the double white Hepatica had been sent for the inspection of the Editor. It had come from Germany, and, after putting myself in communication with the raiser, who was a nurseryman, I learned that it was a seedling, and that plants were not yet ready for sale, although inserted in his catalogue unpriced. There is no valid reason why this double variety should not be recognised as having been in existence, and none exists to prevent us from hoping that the raising of seedlings may give us white, pink, and blue varieties, with intermediate shades, hitherto unknown, of double-flowered Hepaticas.

There is plenty of variety among the single-flowered Hepaticas. We have the common blue; Barlowi, which some have reckoned a species, of a deep purple-blue; single red, single-pink, single white or alba; the same with white anthers, alba major; alba cœrulea, tinged with blue; alba rosea, white, tinged flesh colour; Beauty, silver-grey; cœrulea pallida, with its variety major, pale blue; lilacina, lilac; lilacina pallida; rosea pallida, pale rose; rosea splendens, a fine-coloured flower, with rosy-crimson blooms. One might in time raise all these varieties from seed. The seeds should be carefully gathered as soon as ripe. They may either be sown when ripe, or kept until autumn. The seeds ought to be sown in pans or boxes. The surface of the soil should be kept uniformly moist until the seeds germinate the following year. In order to secure this, some growers place pieces of slate on the top of the pan. When the seedlings are large enough to handle they may be planted out. They will flower in from two to three years after their first appearance.

Fine as is Anemone (Hepatica) angulosa, its sparseness of flower with the great majority of growers militates greatly against its usefulness. In few gardens does it produce anything like a full quantity of bloom, and the writer has seen various methods tried to make it more floriferous, but in vain. Not unlikely we may have to look to seedling-raising to give us free-blooming varieties of this splendid large-flowered Hepatica. In the cultivation of the Hepatica one finds that a good, rather heavy soil is the best for inducing free growth with plenty of flower. A little shade is beneficial; and, provided that shelter from the trying east winds is secured, an easterly exposure suits the plant well. Removal and division ought, as far as possible, to be avoided. It dislikes both; and when it is necessary to divide plants, the soil should be well washed from among the roots before division. Before re-planting, the roots may be dipped in water, and then into dry earth or sand, which will then adhere to the rootlets, which seem shy to take hold of new soil. A little attention to the Hepaticas, in the way of top-dressing with well-decayed cow-manure, will not be unrewarded.

Varieties of Hepatica angulosa.

One is pleased to see that decided breaks in the colouring of Hepatica angulosa have at last been obtained. I am indebted to Messrs. Richard Smith & Co., of Worcester, for bunches of flowers of two varieties of this Hepatica; these were raised at their nursery. The first is named H. angulosa atrocœrulea; it has very large flowers, of deep purple-blue, rather lighter than those of H. triloba Barlowi; this is a very beautiful variety. The other is as yet only named "variety." The flowers are a very delicate pale blue, not so large as atrocœrulea, but with an additional number of sepals. One is at a loss to say which of the two is the more beautiful. Now that we have secured breaks like these, we may expect other tints and shades to be produced in this fine Hepatica. Among the varieties of H. triloba which came at the same time was one I had not seen before, which is, perhaps, more curious than beautiful. It is named tesselata. The flowers are small, and the sepals are not quite as long as the bracts, so that the blooms look as if they were surrounded by a small green collar. *S. Arnott.*

Eranthis cilicicus.

Among other interesting things in the notes on spring flowers by Dr. Dammer, in the *Gardeners' Chronicle* of April 1, is a reference to Eranthis cilicicus. With me it blooms later than E. hyemalis, so that either the climate at Berlin is the cause of the difference, or the tubers have been collected in a different quarter. Personally, I prefer our old acquaintance, E. hyemalis, but some may like the newer introduction better. As Dr. Dammer says, the leaves of E. cilicicus are more finely divided. The plants I have grown are a little darker in colour than E. hyemalis, but my stock has been small. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

KEW NOTES.

Cliveia miniata citrina.—This well-marked, beautiful variety is now in flower in the T range at Kew. It is said to have been collected wild in Zululand by Captain Mansell, and first flowered in the garden of Mrs. Powys Rogers, Perrenwell, Cornwall, in April, 1897, when flowers of it, and subsequently a little plant, were sent to Kew. An example of the same variety had, however, already been added to the Kew collection by the Rev. W. H. Bowden, Bow, North Devon, who sent it along with some other plants which had been collected in Zululand, and it is this plant which is now in flower. It resembles a good form of the type in every particular except colour, in which it differs widely from all the forms hitherto raised in gardens, and popularly known as Imantophyllums. These are all more or less of a reddish orange colour, but the variety citrina is coloured a clear pale cream with a faint tinge of orange at the base of the segments. This variety ought to prove valuable to breeders of Cliveias, whose efforts so far have produced exceptionally little colour variation in the seedlings raised.

Hæmanthus cinnabarinus.

A group of about twenty plants of this handsome Hæmanthus is now flowering in the Nepenthes-house at Kew, where, owing to the conditions being favourable, the leaves and flowers are of much larger dimensions than those represented in the *Botanical Magazine,* t. 5314; indeed, the Kew plants might be taken for H. Lindeni, which differs from H. cinnabarinus only in the larger size of its leaves, and greater number of flowers in the umbel. H. cinnabarinus was introduced from the Gaboon in 1857, and has since been found in other parts of the Guinea coast. The Kew plants now flowering were brought from Aburi, Gold Coast, by Mr. C. H. Humphries nearly two years ago. Planted in light soil in the low rockery in the Nepenthes-house, this bulb has grown much more satisfactorily than others of the same species which were started at the same time in pots. The flowers are of a bright cinnabar-red colour, and they are arranged in a large head, as in Agapanthus.

Erica Chamissonis.

This Cape Heath is so similar to that shown by Messrs. Veitch as E. propendens at the Drill Hall recently, that it might easily be mistaken for it. There are good botanical differences, however, in the length of the pedicels and the colours of the anthers, which in E. Chamissonis are of a bright purple colour, and the pedicels are half an inch long; whereas in E. propendens the flowers are sessile on the ends of the branchlets. In habit and colour there is practically no difference, and for garden purposes they may be said to be of equal value. That E. propendens has merit was proved by the award of a First-class Certificate to the plants shown by Messrs. Veitch. E. Chamissonis was figured in the *Botanical Magazine* in 1874 (colour too pink), when Sir Joseph Hooker bewailed the disappearance of the beautiful Cape Heaths from English gardens, attributing it partly to their culture being unknown to most gardeners of the present day, who kill such plants with too much water. Such pretty greenhouse plants as the two above named are worth the little special attention they require, even in these days of hurry from seed-pot to exhibition hall. *W. W.*

IRELAND.

DUBLIN.

We had the best spring show we ever had here on Thursday last, April 6. Daffodils, Cyclamens, Arum Lilies, and Freesias as good, or even better than I ever saw them before. Fruit and vegetables also very fine; Royal Sovereign Strawberries, Cox's Orange Apple, Catillac Pear, obtained 1st prizes. Orchids and stove plants, especially Crotons (Codiæum), were very rich in colour. Flowering shrubs, Deutzias, Azaleas, and herbaceous collections, shrubs and bulbs included, were superb.

The finest sight in Dublin streets to-day is Sir Philip Crampton's Pear-tree, a Jargonelle, planted by him in the area in front of No. 14, Merrion Square, N., in the year of our Lord, and of Waterloo, 1815. It is now one vast sheet of white clustered blossoms, resembling wedding bouquets, and the admiration of the most *blasé* or *borné* passer-by. Even the car-men point at it with their whips as they drive past, and say to their "fares," or to each other, "Look at that for Oireland! It's moighty fine entirely. So it is, begorrogh!" I have never seen a single fruit-tree so fine and fertile anywhere, and we look upon it here as quite a historical and national monument to one of Ireland's many great medical or surgical men.

The gales have blown our Daffodils to pieces; they did not "dance with glee," nor did our "hearts with pleasure fill;" we deplored the ruin, and hoped for more genial April days. *F. W. Burbidge.*

CULTURAL MEMORANDA.

GOLDFUSSIA ANISOPHYLLA.

Some score of years ago this pretty plant was frequently seen in gardens, but for some reason it has now almost disappeared. The plant is an evergreen, with dark green leaves and tubular flowers of blue and lilac colours, borne in profusion. Flowers of these tints are not plentiful among stove plants in the summer and autumn months: and having regard to this fact and to the ease with which they can be produced, the plant deserves a place in every garden. After flowering, a plant should be cut back and afforded a partial rest, i.e., water should be withheld for a few weeks, not, however, allowing the mould to become excessively dry. When the plant breaks, partially shake the roots of the soil, and repot in a pot of a suitable size (say a 6 or an 8-inch one), using a compost of equal parts fibry loam, peat, or decayed cow-dung, broken up by hand, and some silver-sand. During the growing season afford the plant a temperature of 65° to 80°, and abundance of aërial moisture. The plant being always infested with red-spider in a dry house, it is very essential that it be kept in a moist one till it begins to flower, when a drier one is more desirable. As it flowers in the summer and autumn, a warm conservatory will suit the plant at that time, being conducive to continued flowering and the ripening of the wood, not only of this plant but most stove plants during those seasons.

Young unflowered shoots 3 inches in length make good cuttings, and these root readily when inserted in sandy soil, and plunged in a hot-bed. When rooted, pot off immediately, growing them on in a stove, pinching out the points of the shoots several times in order to get plenty of branches. *H. T. M., Stoneleigh Abbey Gardens.*

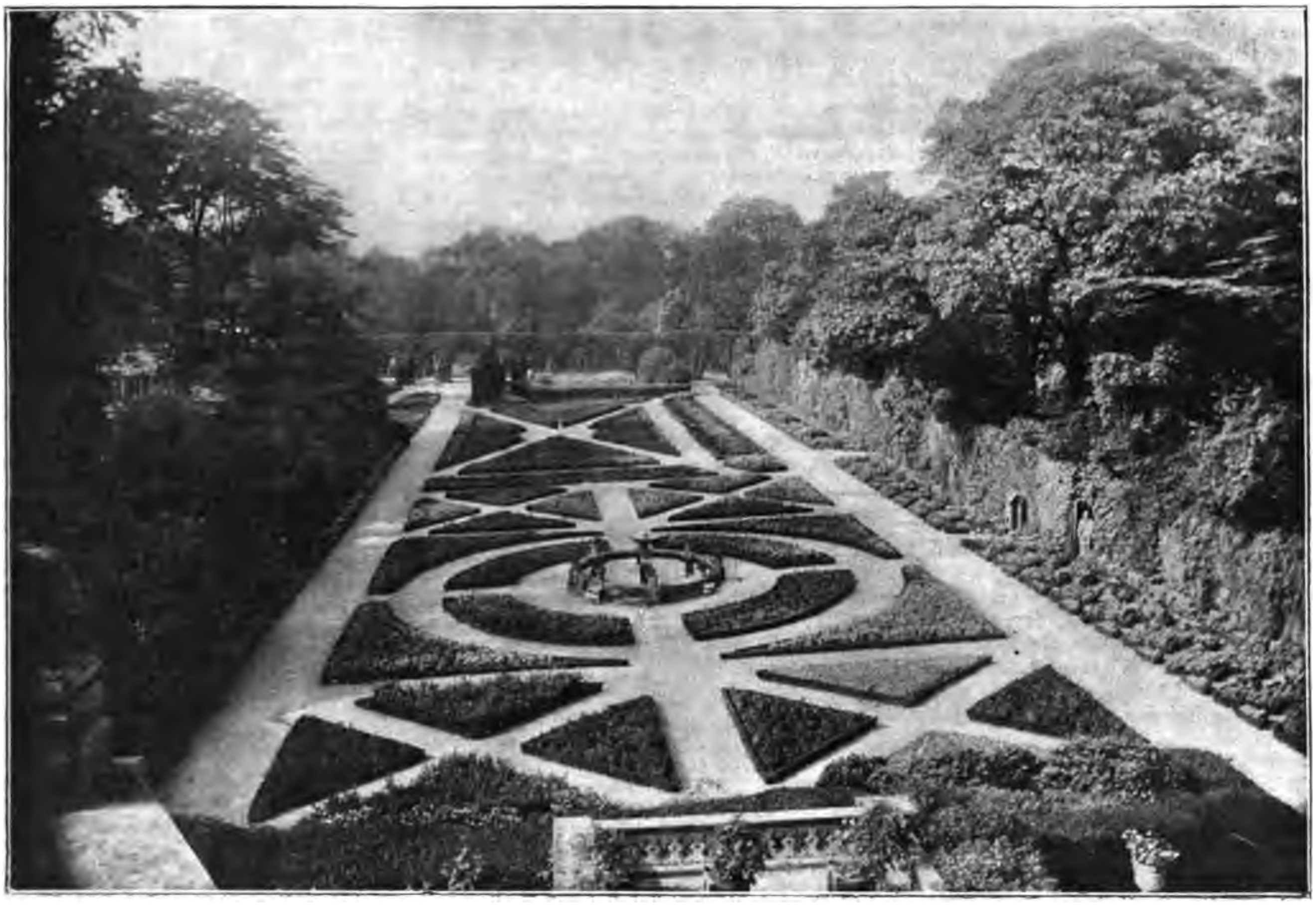


Fig. 86.—Holland House: the Dutch flower garden, looking west. (See p. 225.)

NOTES FROM A SCOTTISH MANSE.

Nature has of late been very capricious and unreliable, so far as regards her atmospheric manifestations. For a time she was unusually mild and gracious in her moods, smiling upon her vernal creations with a summer-like amiability; then suddenly she assumed a sterner aspect, and the progress of vegetation soon received an unwonted check, through a somewhat severe visitation of the frost. In some regions, I doubt not, the results were disastrous; here, where we have a sheltered situation, especially from the north and east winds, whose influence of late has been most severe, we have not suffered much. Heavy rains have followed the departure of the frost, and genial weather once more prevails. Many of my finest Rose-trees have already been generating exquisitely-coloured shoots, especially such varieties as Alister Stella Gray, supposed to be a kind of miniature variation from Wm. Allen Richardson (which here achieves little during the summer, but is on the other hand, a very profuse autumnal bloomer); Madame Pierre Cochet, A. K. Williams, Homer, Clio, and Viscountess Folkestone. Flower-buds are already visible on the Rose last mentioned, which is one of the most precious, alike for beauty and fragrance, of the hybrid Teas. Whether they will be graciously permitted to reach maturity is another and widely different question; in any instance, in such a variable season their development must be slow.

Those who delayed the pruning of their Roses till the present period, have reason to congratulate themselves upon such prudent procrastination. We cannot say with the poet, with reference to this matter at least: "'Tis madness to defer."

The great attractions of April, on whose confines I am writing, are the flowering trees. The flower-buds of the Almond are preparing to expand their pale-pink splendours o the sun, and the season of luxuriant bloom for the Plums and the Cherries, judging from their aspect, is not far away. Already we have the earliest of the Auriculas, perhaps the most fragrant, and not the least beautiful, of vernal flowers; when they begin to unfold their odorous treasures, we know from experience that summer with all her glories is near. One floral revelation, each more lovely than its predecessor, is followed by another, as wave flows into wave on a boundless sea. Such is the infinite variety of Nature, by which our spirits are constantly inspired, and thus rescued from weariness, yea, even from despair. What were this life of ours, with all its environing mysteries of sorrow and suffering, without its sunlight and its flowers? And yet, as Mrs. Hemans has so touchingly sung:—

> "Alas, for Love, if thou wert all,
> And nought beyond—O, Earth!"

The reign of the Primrose, one of the purest and gentlest daughters of Nature, has already begun. This peninsular parish is peculiarly a region of Primroses; here they appear to him who loves them to have found their happiest home; they clothe the green slopes that rise softly from the waters of the spacious Bay of Luce; and glorify the rocks that tower in stern majesty over the western Irish Sea. They have many floral companions there, all of them fascinating in their form or colour, their picturesque position, or romantic environment; but none so gracious, so fragrant, or refined. They are the children of adversity; they are borne amid atmospheric tribulation, equinoctial storms, and desolating rains; yet serene in their beautifully-sheltered recesses, they are the parents of hope—they speak to our natures of brighter days to come.

In our gardens, unless perhaps in shady green places, where they have the companionship of the Daisy of Burns and Montgomery, and the Celandine of Wordsworth (and such retired situations I have provided for them here), they have a somewhat alien aspect, as if they were longing for their native places, the shadowy glens, where they harmonise so gracefully with the sweetly-scented Scilla nutans; or green sequestered nooks amid the heather, above the sunny shore.

Of Primroses more suitable for garden cultivation my favourites are the Double Crimson, with its charming velvety hue; Primula denticulata, whose colour is bright lilac, and whose habit is unique; P. nivalis, with its snow-white flowers—a veritable gem; and, above all, the nobly-endowed Primula rosea from the Himalayas; of which the grandest form, P. grandiflora, first flowered at Aberdeen.

I cannot close this fragmentary article without some recognition, however inadequate, of the kindness of Mr. Melville, head gardener to the Duke of Sutherland at Dunrobin Castle, in sending me recently some very precious flowering bulbs of the magnificent Snowdrop, Galanthus nivalis Melvillei, which was raised by himself, and appropriately bears his name. He sent this variety, contemporaneously, to Mr. Arnott of Carsethorn, who may be regarded as an authority on alpine and herbaceous flowers. It is the largest and loveliest Snowdrop I have yet acquired—a most valuable addition to my floral possessions. *David R. Williamson.*

NURSERY NOTES.

MESSRS. J. VEITCH & SONS, LIMITED, THE ROYAL EXOTIC NURSERY, CHELSEA.

THE visitor to this establishment at the present time will find much to interest him in the numerous glasshouses. Does he wish to refresh his memory with a sight of New Holland and Cape plants, there are houses and pits filled with Boronias, Tetrathecas, Pimeleas, Acacias, Callistemons, and others of those generas, and he will be loth to leave the sweet-scented bushes of Boronia megastigma. A novelty was noted in foreign-grown standards of Callistemon rigidus, with heads 1½ foot in diameter, well furnished with buds of their brush-like flowers. The "Flower House" is filled with all sorts of popular greenhouse subjects, grown as only specialists can grow such plants, to match which the private cultivator may well despair. Here was that pretty-flowering semi-hardy perennial herb Dimorphotheca Eckloni, a Composite, with flowers milk-white within and pale purple without. Its flower-stalks reach a height of 2½ feet, and the flowers are sufficiently numerous as to make it decorative. Deutzias, Azaleas, Lilacs, Cytisus, Calceolaria herbacea, Rhododendron hybrids, Dutch bulbs, and Narcissus, formed the major part of a very pretty display.

The warm-house Rhododendrons are evidently the Londoner's plant *par excellence,* no phase of London climate being inimical to them, as the vigour of their growth at the present date shows. Later on, the trusses of blooms will be very fine and numerous. We only saw a few in bloom the other day, and among them the handsome Balsaminæflorum album. Other plants remarked as coming on in quantity are the Phyllocactus, the floral display from which will exceed that of any previous year.

The Hippeastrum-house was gay with numerous flowering bulbs, and the following were noted as being more than ordinarily distinct. Tarascon, a bloom of a very fine shade of deep crimson, smooth and regular in shape; Troilus a crimson self of another tint, and with a velvety appearance; Bryges is similar, and with a glistening surface; Cupid is a scarlet, with white stripes, and a greenish stain at the bottom of the flower; Maer is a pretty bloom, white, with faint stripes of a crimson tint; Dumas is a scarlet bloom, having white bands: a bright and distinct variety; Lago is a deep crimson self, of regular shape, and much substance in the flower; Python, a rich velvety-crimson, of a fine shape, is one of the best; in the same way is Quintus, but with a light crimson band running down the middle of each segment; Euryllis is a white-ground flower, with broad and narrow stripes of a crimson tint; Enita is similar, but it has fewer stripes.

The aim of the hybridiser now, is to get away from self-coloured flowers, and to raise such as possess at the least a clear ground-colour with markings of some other well-contrasted colour; and another quest is that of a yellow-flowered variety. The nearest step to this consummation at present existing is a flower of salmon-red, with the faintest tinge of the desired colour. The display of these bulbs will endure for about a space of three weeks, the actual length of time being dependent on the weather.

THE ORCHID HOUSES

disclosed many fine hybrids and other plants. Of the former we may mention a delicately tinted Chysis Sedeni, obtained from C. Limminghi and C. bractescens; Dendrobium Alcippe out of D. lituiflorum Freemani and D. Wardianum, partaking more after the former; D. Venus, obtained by crossing D. Falconeri and D. nobile, a very pleasing flower, with considerable resemblance to the latter species; D. Euterpe, out of D. Wardianum and D. nobile, remarkable for the pale tints of the flower; and D. albo sanguineum, with fawn-tinted sepals and petals, and purple-blotched throat. The creamy-white and yellow Bifrenaria Harrisoni candida was carrying a goodly number of blossoms.

The show of flowers in the Odontoglossum-house, judging from the mass of advancing flower-spikes, will be a good one, especially the species Alexandræ, Pescatorei, and cirrosum. In the large house were numbers of blossoms of Cattleya Schroderæ in much variety of colour as regarded their labellums. A plant of Cattleya Lawre-Mossiæ, a new cross between C. Lawrenceana and C. Mossiæ was remarked, and one of C. Schroderæ eximia, which has an attractively frilled lip, and a cincture of crimson in the tube. A plant of the Sedenian hybrid Lælio-Cattleya Pallas was in bloom in this house; and in an adjoining house the rarely seen Cypripedium Lindleyanum, as also C. Chamberlainianum. Of plants of Aërides japonicum there will be a nice display in about a fortnight.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Cabbages.—Let the main crop be forthwith earthed up, if it be not already done, and set out more plants from the seed beds. Cabbage Early Ellam's will now be forming hearts, and where they have been planted thickly, every alternate plant may be pulled up for present consumption. The larger varieties will follow these, but I fear many of Enfield Market will bolt this year. Several sowings of Cabbage-seed should be made from March to July, and planted out in moderate numbers, so that no scarcity of this indispensable vegetable can occur. The early beds, which most gardeners preserve for supplying sprouts, such as Early Evesham, Ellam's, and several of the smaller quickly hearting varieties, are sure to prove of great value. Keep the hoe in constant use amongst the various plots. Plants raised in heat should, after duly hardening them off, be planted out in showery weather, but if there is no immediate reason for planting them, it will be better to keep them growing under glass, i.e., in frames, till the weather gets more settled.

Peas.—Let all Peas requiring support be staked in turn, first drawing a little soil up to the plants, and for a time bits of Spruce, Fir, and Laurel may be stuck along the rows to give shelter against wind and frost. Even the dwarf William Hurst, Chelsea Gem, and others will benefit from this sort of shelter. As soon as the latest sowing of Peas shows above ground, some of the more tender large-growing Marrow-fats may be sown in drills drawn 2 inches deep, this depth being preferable at this early date.

Spinach.—Seed of Spinach should be sown at weekly intervals of time if the demand is a constant one, employing the variety Victoria, which is superior to the old round-seeded Flanders Spinach, in having larger and more succulent leaves, and in not running to seed quickly. It is quite as hardy as the winter Prickly Spinach. Sow thinly, and when large enough to pull up by hand thin the plants to 6 inches apart. Spinach likes a good-holding, rich soil, and if partially shaded no harm occurs in the summer months; for example, two rows may be sown between two rows of Peas, when these are sown. Should the soil be dry when the drills are drawn, apply liquid manure, and sow the seeds soon afterwards. Seeds of the so-called Spinach Beet may be sown, the leaves of which may serve to fill a gap in the supply. The seeds of this plant should be sown in drills drawn 1½ foot apart, and 8 inches from one patch of seed to another, and be singled when large enough to handle. One sowing made in this month will suffice for the season.

Mustard and Cress.—Seeds of Mustard and Cress may now be sown at short, regular intervals of time, on a sheltered and warm border, as also fortnightly the seeds of Radishes, and Golden or Normandy Cress. The beds of Radishes should for a time be protected against birds, or much of the seed will be carried off. In the event of very cold or very dry weather, mats or clean straw should be laid over the seed-beds till germination has taken place. The varieties of Radishes are legion, therefore I do not specify any variety. If the accommodation under glass is limited, and the supply of Lettuces for salad is likely to fall short of the demand, a sowing may be made in shallow boxes, choosing for the purpose a quick-growing variety. The entire plants, if cut when large enough, will make nice dressed salads, and save the outside plants for some time longer. Let seeds of the larger Cos varieties be sown at bi-weekly intervals, in lines on firm, rich soil, in the open quarter, and thin the plants to 10 inches apart. Lines of cotton-thread may be stretched along the rows to keep off birds; also sprinkle with lime and soot to deter slugs.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Lawns.—Before mowing begins, a lawn should be thoroughly swept and rolled, but before this is done, the coarser weeds found in the turf should be spudded out, and the holes made in doing this filled up with fine loamy soil, and made quite firm with a rammer after sprinkling the surface with lawn grass-seed. Plantains are nasty weeds that should always be removed from the turf root and stock, for if any portion of the roots be left in the soil, the crowns will still further increase in size. On places where the grass is thin, fine grass-seeds should be sown after scratching the surface with a rake, and be covered slightly with fine soil, and finally made firm with the lawn-roller. The same methods apply in laying down new lawns with seeds. If a lawn mixture be purchased from a trustworthy source, the quantity of seed need not exceed 80 lb. per acre. Those who like to use Clover on the lawn should sow the seeds before the grasses, hacking them into the ground with a wooden rake. The best species are Trifolium repens and T. minus; the first-named may be sown at the rate of 6 lb., and the second 2 lb. per acre.

Hardy Ericas.—The plants of Erica herbacea carnea, having now passed out of flower, should be clipped-in hard. When planted to cover rock-work on a big scale the leading shoots may be left untouched, and these will in time form large cushions of bloom. E. mediterranea, and its varieties alba, carnea, glauca, and rubra, flower during the month of May, and need similar treatment after flowering. E. vagans blooms in the early autumn; and it forms a nice edging to beds of Ghent and mollis Azaleas, and when allowed to grow naturally it makes handsome bushes. The Ericas grow in any light loamy soil free from chalk or lime, but when planted in sandy peat the leaves and flowers come of a darker tint.

Gaillardias.—These handsome perennials succeed in hot places in the garden, where other plants would be liable to be withered up by the heat of the sun. The soil for them should be of a light nature, well enriched with manure, and deeply dug. Gaillardias are most effective when planted in groups of several together, planting them individually at 8 inches apart, spreading the shoots out, and pegging them down so as to cover the ground. The following have very fine flowers of various shades of yellow with crimson centres:—Comet, Her Majesty, James Kelway, Old Gold, Primrose Dame, Vivian Grey, Oliver Wendell Holmes, and William Kelway. The varieties W. B. Child, Lord Rosebery, and Sir Vindex, with beautifully-notched petals, are superb as cut flowers.

Gynerium argenteum (*Pampas-grass*).—Clumps that have become bare in the centre should be dug out, the exhausted soil removed to the depth of 3 feet, and be replaced with rich pasture-loam three-fourths, and manure one-fourth. The healthy portions of the clumps may again be planted at a suitable distance apart, so as to admit of considerable increase in size, as the plants should not require removal for half-a-dozen years. The plants are usually found in gardens in two sexes, but the inflorescence of the female is of a purer colour than that of the male, and lasts longer in perfection. When well-rooted, the Pampas-grass needs abundance of water in the summer season.

Annuals.—The young plants of Asters, Zinnias, Stocks, Helichrysums, Amaryllis, and other strong-growing annuals should be pricked-out in pits, the soil of the beds being raised near to the glass. Let each plant have as much space as will allow it to grow without being drawn or made weakly. The yellow Pyrethrum, the dwarf-growing Lobelias, and the annuals of small growth do well in boxes.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Miltonia Roezli, &c., has the reputation of being a short-lived Orchid when cultivated under glass. Experience, however, has convinced me that it is as easy to maintain in a healthy condition as its more popular relative, M. vexillaria. A moist, warm, and shady position should be selected for M. Roezli. The plants require to be watered overhead frequently, and to be so placed that the air can circulate amongst them freely, but avoiding at the same time cold draughts. Place a layer of sphagnum-moss over an open lath stage, and stand the plants above this on inverted pots. The roots are apt to die when the peat and moss has decayed, and therefore this material must be replaced before it has reached this condition. Select small pots, and provide them with a large amount of drainage, working in amongst the roots of the plants a small quantity of peat and sphagnum-moss in equal proportions. The leaves must be sponged to prevent injury from thrips and red-spider, and to the same end an occasional fumigation of the house may be afforded. Miltonia Bleuana ×, the hybrid between M. Roezli and M. vexillaria, will thrive under similar conditions excepting that a lower temperature is necessary, such as that of the warmer end of the Cattleya-house.

Cattleya intermedia will require attention as soon as the flowers have been removed, for new roots will then have formed. This desirable Orchid needs the warmest and most shady part of the Cattleya-house, and a somewhat liberal supply of water during the resting period, on account of its thin pseudo-bulbs. The albino forms do best when grown in well-drained pans, suspended from the roof of the same house. A small white scale attacks these plants, and considerable care is necessary to remove it without damaging the dormant buds. A small, rather stiff-haired painter's brush, moistened with soap, is the best means to use.

Lælio-Cattleya elegans.—The various forms of this beautiful Orchid do not commence growth simultaneously, by reason of their diverse parentage, but from now onwards the plants will need to be looked over and potted or top-dressed as required. Position influences the growth of the plants to a very great extent, and if they cannot be induced to thrive they should be placed in various positions with a view to finding the best one. The conditions prevailing in the Cattleya-house suit these plants, but the distance of the stages from the roof should determine whether the plants need suspending or not. The Teak-wood baskets are suitable for them, but a difficulty arises when a larger one is required; the impossibility of removing the rods of the basket without injury resulting to the plant on the one hand, and the undesirability of burying the wood in a more commodious receptacle on the other being a great drawback. With the smaller specimens this difficulty is got over by using perforated pans, of which perhaps the best is Sander's Perfect Orchid Pan. When plants growing in pans need larger ones, it is a matter of ease to break them and place the pieces to which roots are adhering in the new ones, thus preserving the roots and adding drainage at the same time. The material used as a rooting medium should consist principally of peat, with but little sphagnum-moss. A soddened base is fatal to good health, and tends to produce that peculiar disease known amongst Orchid-cultivators as "black rot," a disease that probably attacks L.-C. elegans more often than any other Cattleya.

Dendrobiums will now claim attention in the matter of re-potting and top-dressing, amongst the first being the ubiquitous D. nobile, and the various hybrids obtained from it. Plants when they pass out of flower should be removed to the East Indian-house, or some similar structure, and allowed to have a rest for a fortnight before being disturbed. Dendrobiums of this section are well adapted for growing in baskets, preferably those of a cylindrical nature, which allow the water to escape readily, and have more wood to which the roots may cling. Use fibrous-peat and living moss, and as little as possible to each plant. I find that for large specimens, grown in cylindrical baskets, that the thick bracken roots taken out of the peat forms a good substitute for ordinary drainage, though a few pieces of crock should be introduced to prevent the above becoming soddened. A careful application, and a limited supply, of water is essential for some time after the plants have been disturbed.

Lælia anceps and its varieties now making numerous roots, should be at once overhauled, and specimens that have sufficient rooting-room be top-dressed only, but others should be carefully removed to larger receptacles. Teak-wood baskets best fulfil the requirements of large specimens, and when possible the plants should be so arranged that their subsequent growth will take an inward direction. Small plants may be grown in pans, which can be broken in pieces when a shift becomes necessary. Large pieces of crock should be placed in an upright position for drainage, covering these with a small quantity of peat and sphagnum-moss, the former predominating. Place the plants in the Mexican-house where little shade is used and a large quantity of air admitted. The syringe may be employed on bright days, and the plants kept well moistened in the ordinary way.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Disbudding Peach and Nectarine-trees.—Since milder weather set in, the trees on the south wall have made much progress, making disbudding a matter that must soon be afforded attention. In carrying out the operation of disbudding, a tree should be scrutinised three or four times at intervals of a week, and each time some buds should be removed, choosing for removal the forerights and those under or behind the shoots and branches, never taking many of them at one time. The branches and shoots of a Peach-tree usually radiate from about the centre of the tree; and this being so, the buds, which will in time develop into shoots, are the more suitably placed on the top-sides of the branches, not that a tree therefore bears more or better fruits, but the work of laying is simplified, and crowding of foliage is more readily obviated. Having disbudded the back, front, and lower parts, attention must be paid to these. The Peach will sometimes fruit on short spurs, which are formed by pinching foreright shoots back to two or four leaves, but, all things considered, it is better to ignore this fact and obtain fruit from the young wood only. One thing must be avoided, and that is, leaving so many shoots that they cannot be nailed or trained between existing branches without crowding the foliage and hindering the ripening of the shoots. Oftentimes one bud at the base of last year's growth and the terminal one are as many as ought to be retained, more especially when a tree has filled its allotted space. A young tree will require great care in disbudding, as upon the removal or non-removal of certain shoots, the shape and appearance of the tree will largely depend. Where Peach and Nectarine-trees were thoroughly syringed with some mild insecticide before the blossoms opened, greenfly will scarcely prove troublesome at this date. If, however, any should make their presence known by the leaves curling up, dust the foliage with tobacco-powder, and as soon as the bloom is set, syringe the trees with clean water in the morning, or wash them with Quassia-water. This is at once a simple and safe operation if the weather be not frosty. The nurserymen sell a Quassia extract, which if used according to the printed directions sent with each bottle is a very safe and effective remedy to use against aphides.

The Removal of Tree Coverings.—Where Peach and Apricot-trees have been protected with fixed coverings, a partial removal of these should now take place, and in the case of fish-netting, leaving but two or three thicknesses for seven or fourteen days longer. Movable or sliding screens may be put out of use excepting on cold nights.

PLANTS UNDER GLASS.

By C. R. FIELDER, Gardener to the DOWAGER LADY HOWARD DE WALDEN, St. James's House, Malvern.

Climbing Plants.—Many of these are now making new growth, and these young shoots require to be regulated with a view to furnishing the allotted space on the trellis, and to prevent crowding and entanglement. This applies more particularly to such plants as Lapagerias, Tacsonias, Hibbertias, Dipladenias, and Thunbergias. Where Dipladenias are grown in pots they should be given a position at the warm end of the stove or other house in which a high temperature is maintained, and if the pots can be plunged in mild bottom-heat, growth will be greatly encouraged. Train the young shoots singly near the glass until the flower-buds appear, when they should be taken down and tied to a balloon trellis in such a manner as to distribute the flowers equally over the trellis. The tying should be done before the flowers have opened, so that there will be time for the foliage to assume its natural position. Of the climbers which are raised annually from seed and grown in pots, the Ipomœas, Thunbergias alata, Maurandyas, and Tropæolums are among the most useful. Ipomœa rubro-cœrulea and I. Quamoclit are very beautiful subjects for the conservatory. They may be very readily raised and grown if afforded a warm temperature during the earlier stages. At the end of the spring they may be transferred to the conservatory. They require liberal treatment, and if potted on from time to time will grow and flower through the greater part of the summer.

Bouvardias.—Old plants which were potted-up as previously advised will now be ready to be placed in their flowering-pots. These pots should measure from 6 to 8 inches in diameter, according to the size of the plants. A night temperature of 55° will be sufficient.

Double-flowered Primulas.—Old plants may be divided, and the rooted pieces potted. Offsets may be placed in thumb-pots filled with light soil, the base being surrounded with sand. Place them under a hand-light in an intermediate temperature, or at the cool end of the stove. When well rooted, they should be removed to a cooler house, and be potted into 5-inch pots.

Miscellaneous.—Cuttings of Euphorbia jacquiniæflora and Centropogon Lucyanus should be taken from the old plants with a heel when about 3 inches in length, and inserted in pots filled with sandy peat, and placed in the propagating-frame. Cuttings of the following plants may also be put in now: Manettia bicolor, Eranthemum pulchellum, Impatiens, Ruellias, Justicias, Salvias, Bouvardias, Coleus, &c. Annuals for conservatory decoration which have been pricked out into boxes should be put into thumb-pots as soon as they are sufficiently strong. Cuttings of zonal Pelargoniums for autumn and winter flowering should be potted-up as soon as they have rooted, and when again established the points may be pinched out.

VARIORUM.

THE MARQUIS OF BUTE'S WINES are now vended in the open market, and can be obtained by all who are interested in the noble marquis's vineyard experiment. Before me is an advertisement of Welsh wines "Canary Brand," guaranteed by the Marquis of Bute to be the produce of his vineyards, and to be of the vintage named on the label. The prices vary from 38*s*. per dozen for 1892 vintage to 44*s*. for 1887, and the wines are variously described as "golden, medium sweet," "full golden, rather sweet," "dark golden, medium sweet," and "luscious golden wine." But, alas! on perusing the advertisement in question further, the wine cup is partly dashed from my lips—I see that all the vintages but 1892 are sold out. I will, however, at once sample that, and record the result. *Midland Counties Herald.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	April 18	Royal Horticultural Society's Committees. National Auricula and Primula Society, Exhibition at the Drill Hall, James Street, Westminster. National Rose Society's Committee Meeting.
WEDNESDAY,	April 19	York Florists' Exhibition of Auriculas, Hyacinths, &c.
THURSDAY,	April 20	Linnean Society, Meeting.
SATURDAY,	April 22	Royal Botanic Society, Meeting.

SALES.

WEDNESDAY,	April 19	Greenhouse Plants, Roses, Herbaceous Plants, Begonias, Gladioli, &c., at Protheroe & Morris Rooms.
FRIDAY,	April 21	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 2 to April 8, 1899. Height above sea-level 24 feet.

1899.	Direction of Wind.	Temperature of the Air.				Rainfall.	Temperature of the Soil at 9 A.M.			Lowest Temperature on Grass.
April 2 to April 8		At 9 A.M.		Day.	Night.					
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.		At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 2	S.S.W.	49·5	48·1	51·5	47·4	...	49·1	45·9	44·2	40·8
Mon. 3	W.S.W.	49·8	46·9	60·6	47·8	...	49·5	46·5	44·6	45·5
Tues. 4	S.S.W.	51·9	48·6	54·2	44·9	0·07	48·9	47·1	45·1	37·1
Wed. 5	W.N.W.	52·0	46·8	58·5	42·1	0·02	48·0	47·1	45·4	33·2
Thu. 6	W.S W.	53·8	49·8	60·3	48·4	0·09	49·4	47·8	45·8	39·4
Fri. 7	S.S.W.	46·8	45·5	52·3	45·9	0 13	50·2	47·9	45·8	37·8
Sat. 8	W.N.W.	46·4	41·9	47·5	41·3	0·08	47·4	47·9	46·2	32·6
Means...	...	50·0	46·8	55·0	45·4	Tot. 0·39	48·9	47·1	45·3	38·1

Remarks.—During the week there have been south and north-westerly gales, with some showers. On the 8th inst. there were storms of rain, snow, hail, and sleet.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—48 7°.

Actual Temperatures :—

London.—*April* 12 (12 P.M.): Max. 54°; Min. 36°.

Provinces.—*April* 12 (6 P.M.): Max. 48°, Lincoln; Min. 45°, Holyhead.

Buds and Stipules.

Now is the time to study the construction and unfolding of the buds. A more fascinating task when once the interest is excited can hardly be imagined. To young gardeners in particular the study of buds, their position, nature, and mode of growth, is of very great importance. If they are not concerned or interested in the beautiful transitions between and the perfect leaves, such as pre- elves so markedly in the Horse-Chestnut or the Maple, if they are apathetic in all that concerns the marvellous adaptations and provisions to shelter the young shoot and protect it from living enemies or adverse conditions, if they care for none of these things, then, at least, the pruning of a Gooseberry-bush is a matter of importance to them, and the treatment of fruit-trees and Roses demands their attention.

Sir John Lubbock has recently added to his substantial contributions on similar subjects a little volume on *Buds and Stipules* (Kegan Paul, Trench, Trübner & Co.), with numerous informing illustrations, which we cordially commend to the notice of our readers, amateur or professional. The lover of facts will be satisfied with the array placed before him, whilst the theorists who know how to use the facts, and the men who know how to turn them to the best practical advantage, will alike be pleased with a volume which not only indicates what there is to be seen, but offers lucid explanations of the phenomena. It is a popular book in the best sense of the term, technical, but lucid and attractive.

We cannot here do more than allude to the copious details that Sir John Lubbock has accumulated. Others have done that before him, but their work has been found dry and unsatisfying, because the structural conformation of itself does not interest everyone. Show that the conformation has a history and a significance; link the structure to the work going on in the plant; show the use and purpose of these elaborate arrangements, and eager listeners and attentive students are secured. In these pages, therefore, we have detailed descriptions of things as they are; but, more than that, we have the "why" and "wherefore" put before us in such a way as to ensure our assent.

The young leaves require protection against too great cold, heat, drought, or moisture, too vivid light, and the attacks of animals and plants. This protection is afforded in very varied ways by the bud-scales and stipules.

There is one point on which the author has perhaps not laid so much stress as the case demands, and that is, the occasional presence of numerous buds in the axils of the leaf, and their disposition. In such cases, if one bud be killed, another takes its place—*uno avulso non deficit alter.* Forsythia in full bloom at this time affords a good illustration of this abundant production of buds, as does also the Walnut. The paper of MM. Bourgeois and Damaskinos in the *Bulletin of the Société Botanique de France*, v. (1858), is important from this point of view.

Granted that the bud-scales and stipules have the office assigned to them, it is sometimes difficult to understand why some species are thus protected, and others not; thus, while some Passion-flowers have large stipules, as described by the author at p. 123 of his book, many others have the stipules reduced to mere threads, probably of no present use, though possibly survivals from a former condition when they were serviceable.

"The presence or absence of stipules," says the author, "is not determined by any question of general symmetry, but rather by practical considerations connected with the wants and requirements of the plants. In some cases they are merely the persistent rudiments or organs which performed a useful purpose to the ancestors of the existing species in bygone ages, and under different circumstances."

"If I shall," concludes the author, "have induced any of my readers to look at them for themselves in the coming spring, they will, I am sure, be amply rewarded. They will often be reminded of Tennyson's profound remark about Nature:

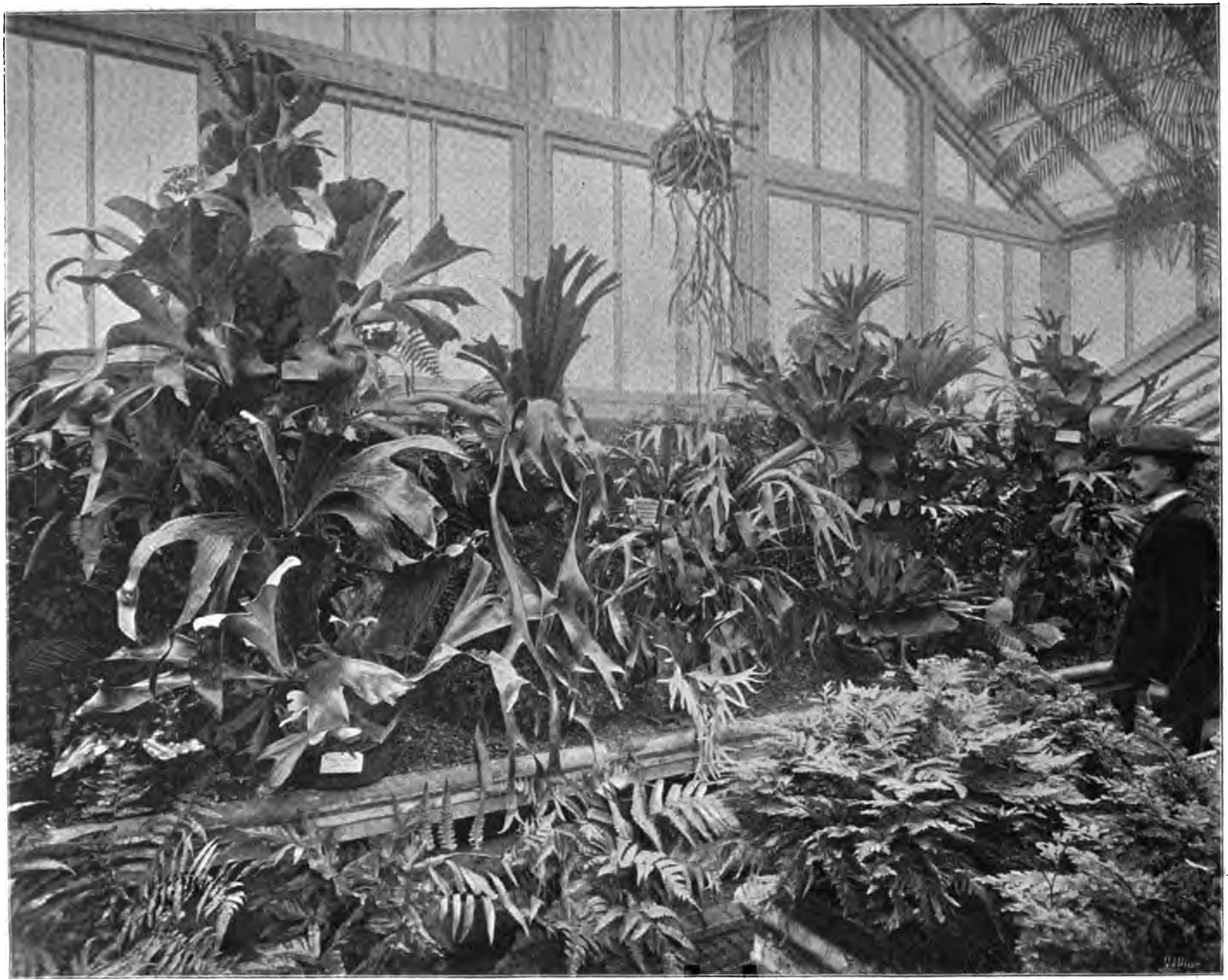
> 'So careful of the type she seems,
> So careless of the single life;"

and will be more and more struck with wonder and admiration at the variety and beauty of the provisions by which Nature preserves these tender and precious buds from the severity of winter, and prepares with loving care and rich profusion for the bright promise of spring, and the glorious pageant of autumn."

Platyceriums at Kew (Supplementary Illustration).—The annexed illustration represents the collection of Stag's-horn Ferns in the tropical Fern-house at Kew, where the conditions, since the house was altered, appear to be exceptionally favourable to the growth of these, and, indeed, most other tropical Ferns. The Platyceriums are growing on imitation tree-trunks, made of stout logs, to which large strips of cork-bark are fastened in such a way as to present the appearance of a gnarled trunk, and at the same time to afford pockets which are stuffed with sphagnum-moss and peat. The plants are held in position by means of copper-wire until they become established. The whole mass is kept constantly moist, and that the treatment agrees with the Platyceriums is abundantly evident. The large mass on the left in the picture is P. Stemmaria (æthiopicum), which has fertile fronds over 2 feet long. Next to it is a fine example of P. biforme with an enormous mass of brown barren fronds like an elephant's head; a newly-formed one, over 3 feet long, deeply lobed, and standing erect, as in P. grande, whilst springing from its base, and measuring 6 feet in length, are the fertile elk-horn-like fronds. This species is exceptional in that it produces its sori on a separate short, thick spoon-shaped basal lobe, instead of on the under side of the upper part of the prolonged fronds. This, which is probably the largest living example of this species ever seen alive in Europe, was sent to Kew two years ago by Mr. Ridley, Director of the Gardens and Forest Department, Singapore. Next to it stands a mass of P. alcicorne, some of the fronds of which are 2 feet long; then an equally fine "trophy" of P. grande, perhaps the handsomest of all the species, with its large, bold, deeply-lobed, bright green, barren fronds, 2 feet long, and over 3 feet wide, and its long, drooping-lobed fertile fronds. There is also a good example of P. angolense, of which a figure was published in the *Gardeners' Chronicle* last year, and one of the rare P. Wallichi; several varieties of P. alcicorne are also represented by large specimens. The Kew collection contains all the Platyceriums that are known to be in cultivation. There are several distinct species not yet introduced, two of them natives of Madagascar, viz., P. Ellisii and P. madagascariense, which, judging by dried specimens, are worth introducing. Possibly French collectors will forward them before long. The plants are easily cultivated, provided the essential conditions of heat, a sweet, open compost, and plenty of moisture are provided. They multiply rapidly by means of stoloniferous offsets and root-buds; they are also easily raised from spores. I lately saw a fine batch of young plants of the new P. angolense in Messrs. Sander's Nursery at St. Albans. *W. W.*

The Royal Horticultural Society's next meeting will be held on Tuesday, April 18, in the Drill Hall, James Street, Westminster, and the National Auricula and Primula Society will hold its annual show at the same time and place. There will also be an exhibition of Daffodils. At 3 o'clock a lecture will be given on "Asparagus, Forced and Outdoors," by Mr. Geo. Norman.

Linnean Society.—At a meeting of this Society, to be held on Thursday, April 20, 1899,



GROUP OF PLATYCERIUMS IN THE FERN-HOUSE, ROYAL GARDENS, KEW.

at 8 P.M., the following papers will be read :—I. "The Botany of the Ceylon Patanas," by Mr. H. W. H. PEARSON, B.A. ; II. "Imitation as a source of Anomalies," by Prof. R. J. ANDERSON, F.L.S. ; III. "List of British and Irish Spiders," by Rev. O. PICKARD, Cambridge, F.R.S.

NATIONAL ROSE SOCIETY. — The Hon. Secretaries desire us to inform our readers that a meeting of the Rose-soil Analysis Committee will be held at the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, the 18th inst., at 2 P.M., to consider the best steps to take in regard to Mr. A. HILL GRAY'S suggestion that certain Rose-soils be analysed.

THE CYCLES' REST AT KEW.—In the House of Commons, on Monday last, Major BOWLES, M.P. (Enfield), drew attention to the want of accommodation for bicycles used by visitors at Kew Gardens ; and Mr. LOUGH (Islington), is reported by the *Times* to have advocated the formation of cinder-paths for cyclists in all the London parks, including Kew Gardens. Quite so ! let us have exhibitions of the "science" in front of the succulent-house, announced in the *Sporting Times*, and let the reports of the "events," in which female as well as male performers take part, be published in that organ of sport and in the *Kew Bulletin*. It is true it would be disgustingly inappropriate or very amusing, according to the diverse tastes of individuals, and Kew has to consider the desires of the public, including Mr. LOUGH, M.P.

THE LAW OF PRIORITY.—Count DE KERCHOVE has an amusing letter on this subject in the current number of the *Revue Horticole*. He records a supposed conversation in old French in which the plants named are called by their ancient names, which he truly says would be almost incomprehensible, although the law of priority would be respected. It is as if we were to write that the gardener had plucked some "hnutu" near the "haeguthorn," and gathered some "merici" under the "mapuldur." By right of priority, the "Hazelnut," the "Hawthorn," the "Parsley," and the "Apple-tree," should, in the opinion of some folk, lose these well-known designations, and resume those we have above cited from the Epinal Glossary (8th century). But then there would be no finality. Professor STRAWBRICK may find somewhere amid the ruins of the Tower of Babel evidence of the use in pre-Babel days of names other than those in the Epinal Glossary. What then? Obviously some botanists will never be content till they have discovered or manufactured an "Index Edenensis," compiled by one ADAM, Protokeepōros.

THE SPRING FLOWERS on the grass and in beds at the Regent's Park will be very beautiful in the course of a few days. At present, varieties of the Grape-Hyacinth, and of Scillas, in full flower, nestling at the foot, and partially encircling small shrubberies, have a most attractive appearance.

CHALLENGE CUP FOR DUMFRIES FLOWER SHOW.—The Dumfries Town Council have resolved to vote a sum not exceeding £15 for the purchase of a Challenge Cup to be competed for at the Dumfries and Galloway Horticultural Society's show. The Dumfries and Galloway Society, as resuscitated, will hold its show in the Drill Hall, Dumfries, on Wednesday, September 6.

STOCK-TAKING : MARCH.—The terrible weather experienced in many parts of the world during the past two months, added to the serious commencement of speculation in certain imports, must take credit for the heavy diminution in the value of imports during the month of March as compared with the same period in 1898 ; thus, last month's total is given at £41,492,388, as against £43,412,829 —a decrease of £1,929,441. The heaviest decrease is to be found in raw materials for textiles (£1,330,527) ; this is followed by £1,249,487 (articles of food and drink, duty free) ; £205,302 in the section of "animals, living, for food," and other smaller amounts ; the "increases" being in metals (£737,542) ; miscellaneous articles (£107,291) ; also manufactured articles, raw materials for sundry industries, &c., with a total of £94,249. Our usual extract from the "summary" table is as follows :—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	43,412,829	41,492,388	—1,920,441
(A.) Articles of food and drink — duty free	14,894,777	13,645,290	—1,249,487
(B.) Articles of food & drink—dutiable	2,242,124	2,206,597	—35,527
Raw materials for textile manufactures	7,737,056	6,406,529	—1,330,527
Raw materials for sundry industries and manufactures	3,635,334	3,648,872	+13,538
(A.) Miscellaneous articles	1,397,628	1,504,919	+107,291
(B.) Parcel Post ...	141,117	112,094	—29,023

We may note that Hops figure for £58,863, against £63,063 in March, 1898 ; seeds (including Clover and grass, equal £89,424 last month, £127,329 same month last year), were entered to the value of £582,119, against £601,425 in the same period 1898. The value of timber and wood figure at £637,190, against £641,755 for March in 1898. We pass on now to the enumeration of fruit, roots, and vegetables, imported in the last month as follows :—

IMPORTS.	1898.	1899.	Difference.
Fruits, raw :—			
Apples ... ... bush.	160,779	231,931	+71,152
Grapes ... ... „	1,649	2,880	+1,231
Lemons ... ... „	123,904	107,311	—16,593
Oranges ... ... „	1,022,846	1,357,443	+334,597
Pears ... ... „	3,153	3,030	—123
Plums ... ... „	90	58	—32
Unenumerated... „	68,701	76,385	+7,684
Onions ... ... „	272,059	395,686	+123,627
Potatos ... ... cwt.	635,872	67,894	—567,978
Vegetables, raw, unenumerated ... ... value	£109,289	£129,200	+£19,911

We may, too, refer to the loss of the steamship *Labrador* and its cargo of first-class Canadian Apples— which latter, after floating about the coast in barrels, fell to the lot of island youth and cattle, with neither of whom did the sodden fruit agree. The minus figures in the above table are well worth consideration by the cautious grower ; the plus quantities have long since been thoroughly appreciated. The total of the three months' report is £118,242,584, against £119,099,209—a decrease of £856,625. The final section of the paragraph is devoted to our

EXPORTS.

Those have gone up somewhat—the total for last month being placed at £22,324,401, as against £20,833,865 for the same month in 1898—or an increase of £1,490,536. The greatest increase is in ships, new, not registered as British (not recorded prior to 1899), of £1,474,067. The items of decrease foot up at £708,663 ; those of increase (apart from ships, including £185,860 for machinery and millwork), give £725,132. It may be noted that orders for railway works, including locomotives, have found their way from this country into Belgium and the United States, and this is mentioned as derogatory to our workmen ; we believe the fact is, that our great factories are now and have long been overloaded with orders. The figures for the past three months are £62,054,941, against £57,707,118 for the same period last year—a gain of £4,346,923.

THE ROYAL SOCIETY.—The list of candidates for election this year contains no fewer than seventy-six names. Of these only fifteen can be elected. The Council will recommend to the Fellows that certain candidates be elected, and the Fellows will adopt or reject the nomination of the Council as they think fit, substituting some other name or names for those that they eliminate. How much simpler and less costly is this system than the troublesome and wasteful method of election adopted by our gardening charities. Canvassing is, of course, wholly prohibited. Among the candidates this year, we notice the following botanists :—Mr. J. S. Gamble, the author of the *Manual on Indian Timbers*, and the *Monograph of Bambuseæ* ; Mr. W. P. Hiern, the author of numerous monographs, and of the *Catalogue of Welwitsch's African Plants* ; Clement Reid, of the Geological Survey ; Dr. Schlich, Professor of Forestry at Cooper's Hill ; and Professor Perceval Wright.

"BOTANICAL MAGAZINE."—In the April number the editor gives an account of the appearance in his garden of a variety of Impatiens called—

Impatiens Roylei var. pallidiflora.—The plant differs from the common type in its taller stature, longer leaves and flowers, the latter being of a pale lilac colour spotted with rose-coloured spots. The plant is supposed to be a native of the Sikkim Himalaya ; t. 7647.

Cereus Paxtonianus.—This columnar Cereus is now seen to be specifically the same as C. Cavendishi with which it has been united by SCHUMANN. The native country is unknown. The flowers are nearly 4 inches across, greenish flushed with rose on the outer, white on the inner surface of the petals, Kew ; t. 7648.

Silene Fortunei, Visiani.—A common Chinese plant originally introduced by FORTUNE. It is a perennial with oblong linear leaves and terminal cymose clusters of rose-coloured flowers, with deeply laciniate petals, Kew ; t. 7649.

Yucca elata, Engelmann.—A native of Arizona, recently introduced to Kew. It has a branching stem about a yard high, with broad-based leaves suddenly contracting into linear blades, filiferous at the margins. The inflorescence is a many-flowered panicle, flowers broadly campanulate, about 4 ins. across, greenish white ; t. 7650.

Incarvillea variabilis, Batalin. — A beautiful perennial with deeply pinnately divided foliage, and racemes of rosy-lilac flowers. The corolla is over an inch long, with a narrow yellow tube expanding into an oblique, 5-lobed, spreading limb. It is a native of Western China ; t. 7651.

THE GARDENERS' COMPANY.—A meeting of the court was held on Thursday, April 6. Mr. W. A. BILNEY was admitted to the freedom and livery. A scheme for admitting members of the craft and working gardeners to the Company's freedom, and for granting trade certificates of competency on the result of an examination under the auspices of the Company, was laid before the court by Mr. C. Welch. After considerable discussion, the scheme was referred to a committee, consisting of the Master (Sir William Farmer), Mr. N. N. Sherwood, Mr. C. Welch, and the Clerk (Mr. R. Gofton-Salmond). It was also decided to proceed with a new edition of the short account of the company which was issued in 1890. A proposal to prepare a history of the company and of gardening in the City of London was also favourably received, and reserved for fuller consideration. Among those present were Colonel T. Davies Sewell, Mr. J. Curtis, Mr. C. E. Osman, Mr. A. Barker, Mr. Beaumont Shepheard, Mr. G. Corble, Mr. H. Wood, Mr. R. L. Devonshire, Mr. H. Haines, and Mr. R. I. Tasker. Sir William Farmer, at the close of the business, entertained the members of the court at Dinner at the City Carlton Club, St. Swithin's Lane, Mr. W. A. Bilney, the newly-elected liveryman, being the guest of the evening. *City Press.*

AMSTERDAM.—A large flower-show will be held next week in this city, under the auspices of the "Natura Artis Magistra." It will be visited on the first day, Sunday, April 16, by H. M. the Queen of the Netherlands, and will remain open for three days. On Monday afternoon an explanatory lecture will be given by Mr. J. K. Budde.

HORTICULTURE APACE WITH CIVILISATION.—On the 8th inst. we received a letter from an established florist and seedsman in Bulawayo, Rhodesia, respecting a horticultural appliance he had seen recently mentioned in these columns. It is gratifying to find horticulture thus abreast with the other civilising agencies.

FROST IN CEYLON.—Mr. Nock writes to the *Ceylon Observer* a note on the frost which occurred at Nuwara Eliya on March 7, 8, 9 last. At an elevation of between 5000 and 5700 feet, Mr. Nock made a list of about fifty species of plants that had been more or less injured by frost, including native species, as well as those like the Tree Tomato, Richardia africana, and Eucalyptus robusta, which have been introduced. In seventeen years' experience, Mr. Nock has never seen such an amount of injury.

GHENT CERTIFICATES.—At the usual monthly meeting of the Chambre Syndicale, presided over by M. L. Draps, the following Awards were made:—

CERTIFICATES OF MERIT.

For Cattleya Mendeli, Souvenir de Mdme. Frederic Coryn, shown by M. E. Coryn.

Cliveia President Bruneel, shown by M. De Vriessere-Remens.

Cocos Weddelliana gracillima and Anthurium Rothschildianum by M. A. De Smet.

Cliveia Mdme. De Vriessere-Remens, shown by M. De Vriessere-Remens.

For Cliveia Mdme. Jean Verbauen, by acclamation, Mr. J. Verbauen.

For Nicotiana affinis, shown by M. A. Dallière.

For Anthurium Scherzerianum "Distinction," shown by Messrs. Vervaene-Vervaet et Cie.

Azalea Marie Antoinette, from the "St. Fiacre" establishment.

Cultural Certificates were awarded to—

Oncidium lamelligerum, shown by M. L. De Smet-Duvivier.

Vaccinium Sprengeri, by Mr. E. De Cock.

Epidendrum Wallisii, by M. L. De Smet-Duvivier.

A CULTURAL COMMENDATION.—Mr. B. L. Hammett, of Trewhiddle Gardens, Cornwall, obliges us with photographs of his plants of D. Wardianum and D. crassinode. The cultivation is admirable, as our readers will agree when it is stated that a pseudo-bulb of the first-named variety measured 3½ feet in length, and produced thirty blooms. We have figured both plants on various occasions.

JOBBING GARDENERS.—It will be seen from an article in another column that the Inland Revenue authorities "do not require a licence to be taken out for a jobbing gardener employed at several places and working one or two days a week at each." Where a man supplied by a nurseryman, occupies his whole time, every day in the week, in attending to one particular garden, then he must be licensed. The licence must be taken out by the nurseryman, not by the hirer of the gardener, and the nurseryman must arrange with his customer as to the payment of the impost by increasing the cost of hire, or by curtailing the number of days per week on which the man has to work, and so escaping the licence altogether.

EMIGRATION TO THE COLONIES.—We learn from the latest-issued circular of the Emigrants' Information Office, that in Victoria there are excellent openings, as a rule, for farmers, dairy-farmers, and fruit-growers, if they have a little capital, and some experience of the country. There has been a general rainfall, and a very good harvest, and the dairying industry has improved. In New South Wales, at Uralla and Grafton in the far north, there is a fair demand for farm labourers and carpenters, and a good one for servants. Really skilled dairymen and thoroughly capable farm labourers would probably have little difficulty in obtaining employment in many parts of the Colony. Domestic servants continue to be in steady demand throughout the Colony, and the last annual report of the Government Labour Bureau draws attention to the difficulty of getting them. There are more than enough of ladies' helps, ladies' companions, and governesses. In South Australia there is no improvement in the demand for labour, except that there has been a demand for married couples without families for farms and stations; about 2000 persons have registered their names at the new Government Labour Bureau. In Queensland there is a general demand throughout the colony for ploughmen and other farm labourers, and for female domestic servants. Free passages are again being given to labourers and female domestic servants; and some assistance towards their passages is also now being given to farmers, market gardeners, dairymen, and fruit-growers, and their families. Application must be made to the Agent-general, 1, Victoria Street, London, S.W. In Western Australia there is a good demand for farm labourers in the south-west; and the mining industry continues to expand. The assisted passages to the Colony have been discontinued.

DROPMORE, TAPLOW.—An account of this famous home of Conifers, historical and otherwise, appears in this month's *National Review*, from the facile pen of the Hon. Mrs. Boyle. Many of our readers will recall with pleasure a series of articles by this lady, writing under the initials "E. V. B.," which appeared in the *Gardeners' Chronicle* a few years ago.

"ROSES IN POTS."—The eighth edition of this useful little book has been issued by Simpkin Marshall & Co., Paternoster Row. Nothing need be said in further commendation of so well tried a book, unless it be to say that the list of Roses is kept "up to date."

BROWNEA GRANDICEPS (*Bot. Mag.*, 4859).—A small plant of this handsome evergreen stove tree (Leguminosæ), bearing a truss of blooms, may now be seen in the Water-Lily-house, Royal Botanic Society's Gardens, Regent's Park.

BOOKS.—In the current number of the *Tijdschrift Voor Tuinbouw*, is a descriptive list of works on landscape gardening and other branches of gardening, by Mr. Leonard A. Springer. The list is evidently one of much interest and importance, but being compiled in the Dutch language it is of little value to English readers.

PUBLICATIONS RECEIVED.—*Journal of the Royal Agricultural Society of England*, March 31, contains an article and Part III. of an important paper on "Flower and Fruit Farming in England," by W. E. Bear; as well as communications relating to "Hedges and Hedge-making," W. J. Malden.—*Journal of Botany*, April, including "Notes on Mycetozoa," by Arthur Lister; "Botanical Excursions in Donegal," H. C. Hart; "Relationships of the Indefinite Inflorescences," E. A. Newell Arber; "Alabastra diversa," Spencer Le M. Moore; and "Merionethshire Mosses," J. E. Bagnall, &c.—*Experiments with Crops and Stock in Cumberland, Durham, and Northumberland* (Annual Report of the County Councils for 1898), by William Somerville.—*Observations on the Cultivation of Roses in Pots*, William Paul (eighth edition).—*Pharmaceutical Journal*.—*Agricultural Economist*.—*The Strength and Decay of Nations*, by Giles Andrew Daubeny (*Timber News* Offices, Liverpool and London; and Simpkin, Marshall, Hamilton, Kent & Co.) These are two articles on Forestry and on British Forestry, the former having previously appeared in *Nature Notes*. The author's opinion is that "forests are destroyed with most disastrous results, involving the ruin of climate favourable to life, and to the impoverishment and eventual downfall of once powerful nations.—*Agricultural Journal, Cape of Good Hope*, March 2, includes various reports, a letter from Mr. Mayer, of Stellenbosch, recommending, on the authority of M. Henri Coupin, of Sarbonne, cyanide of potassium, solution of 1 per cent. strength, as a remedy for Phylloxera on Vines; a paper on the "Science of Fruit Tree Fruitfulness Simplified," and similar communications.—*Tropical Agriculturist*, March, with articles on Tea-bushes and their Enemies, Planting in Perak; Planting Coffee, Rubber, Tea, Cotton, Sugar, &c., in Brazil; Vanilla, Plantain or Banana-meal, and so on.—*Indian Gardening*, March 16, and Index to vol. iii., July to December, 1898.—*Annual Report on Government Gardens and Parks in Mysore*, for the year 1897–98. "The information furnished as regards the cultivation of hybrid Coffee and of Potato-tubers deserves particular notice. The season was good, and garden culture on the whole successful. It is satisfactory to note that attention is paid to sericulture."—*Annual Report of Botanic Gardens, St. George, Grenada*, 1897, by W. E. Broadway, Curator. This is satisfactory on the whole, though the absence of the Curator was much felt while he was officially visiting the peasant proprietors of Carriacou and the Grenada parishes, examining the produce, and in a general way instructing those willing to receive hints concerning the founding and fostering of minor products and husbandry for pleasure and profit.—*Annual Report of the Secretary for Agriculture, Nova Scotia*, for 1898. A statement of work done during the year, and an abstract of the Reports of Agricultural Societies.—*Nova Scotia: its Agricultural Resources*, by B. W. Chipman, Secretary for Agriculture, Nova Scotia. A pamphlet "for agricultural emigrants who may be induced to look to Nova Scotia as a field for their labours." A useful map of the province is included.—*The 1899 Supplement to New Creations in Fruits and Flowers*, from Burbank's Experiment Farms, Santa Rosa, Sonoma County, California.—*An Apple Canker*, W. Paddock, New York Agricultural Experiment Station, Geneva, N.Y.—*Minnesota Botanical Studies*, Part II. (2nd series), February 22, contains articles on Seedlings of certain Woody Plants, Francis Ramaley; and Comparative Anatomy of the hypocotyl and epicotyl in Woody Plants, Francis Ramaley; Contribution to the life-history of Rumex, Bruce Fink; Observations on Gigartina, Mary E. Olson; Seed Dissemination and Distribution of Razoumofskya robusta (Engelm.), Kuntze, D. T. MacDougal; Constantinea, E. M. Freeman; Extension of Plant ranges in the Upper Minnesota Valley, L. R. Moyer; and Hepaticæ collected along the International Boundary, by J. M. Holzinger, 1897, Alexander W. Evans.—*Botanical Gazette* (Chicago, Illinois), March. This contains, among other things, Notes on the Structure of the embryo-sac in Sparganium and Lysichiton, D. H. Campbell; Geological Relations of the Vegetation of the Sand Dunes of Lake Michigan, H. C. Cowles; New Colletotrichum Disease of the Pansy, R. E. Smith; New Biennial, Fruited Oak, E. J. Hill; Wyoming Species of Antennaria and New Colorado Antennaria, Elias Nelson.—*The American Florist* (Chicago and New York).—*The Weekly Florists' Review* (Chicago and New York).—Among suggestions for useful horticultural appliances, we find here sketches of a telescopic "bucket," which can be extended for long-stemmed and contracted for small flowers; a "finger-knife" for severing the stems of Carnations and other plants, and consisting of a thimble, with a sharp blade set in the top; and a "smoker," contrived from second-hand stove-pipe.—*Gardening* (Chicago), March 15, with a good article on Freesias.—*American Gardening* (New York), March 18.—*The Florist's Exchange* (New York), March 18 (Special Spring Trade Edit.) and 25.—*Journal Horticole et Viticole* (Bordeaux), April.—*Semaine Horticole et Revue des Cultures Coloniales* (27, Rue du Chatelain, Brussels), April 1.—*Revue de l'Horticulture Belge et Etrangère* (Ghent), April 1, with descriptions and coloured figures of Azalea indica, "Ceres," and Ligustrum japonicum var.—*Geaschel's Allgemeine Gärtner-Börse* (Gera, Reuss), March 26.—*Wiener Illustrirte Garten Zeitung*, March.—*Möller's Deutsche Gärtner Zeitung* (Erfurt), April 1.—*Tijdschrift voor Tuinbouw*, April 9, 10, including a paper by L. A. Springer, and coloured plate of Rubus sorbifolius, and a Review of Horticultural Literature, by the same author.

AZALEAS.

AZALEA SINENSIS.—The beautiful seedlings raised by M. Anthony Koster are said to be hybrids between A. mollis and A. sinensis. There is clearly some blunder here, as these two names belonging to one and the same species, the correct name of which is Rhododendron or Azalea sinensis. The following extract from the *Botanical Magazine*, t. 5905 (1871) may be accepted as conclusive evidence on that point:—"Rhododendron sinense, Sweet, syns. R. molle, Sieb. & Zucc.; Azalea sinensis, Lodd.; A. mollis, Regel; A. japonica, A. Gray. Botanists are now pretty well agreed in considering that Azalea can no longer be considered a distinct genus from Rhododendron. . . . I have therefore followed the eminent Japanese traveller and botanist, Maximowicz, in assuming Sweet's old name of Rhododendron sinense for the Azalea mollis of more recent authors. R. sinense is a native of Alpine shrublands in Japan, and is also cultivated both in Japan and China, whence it was introduced into England, first in 1834, and again by Fortune in 1845."

Mr. Hemsley, in his *Index Flora Sinensis*, adopts the same view, and adds Lindley's Azalea pontica, var. sinensis, as a synonym (*Bot. Mag.*, t. 1253). The plant is unquestionably wild in China as well as in Japan, having been collected in Ningpo, Meichi, Kiangsi, Fokien, and Hupeh.

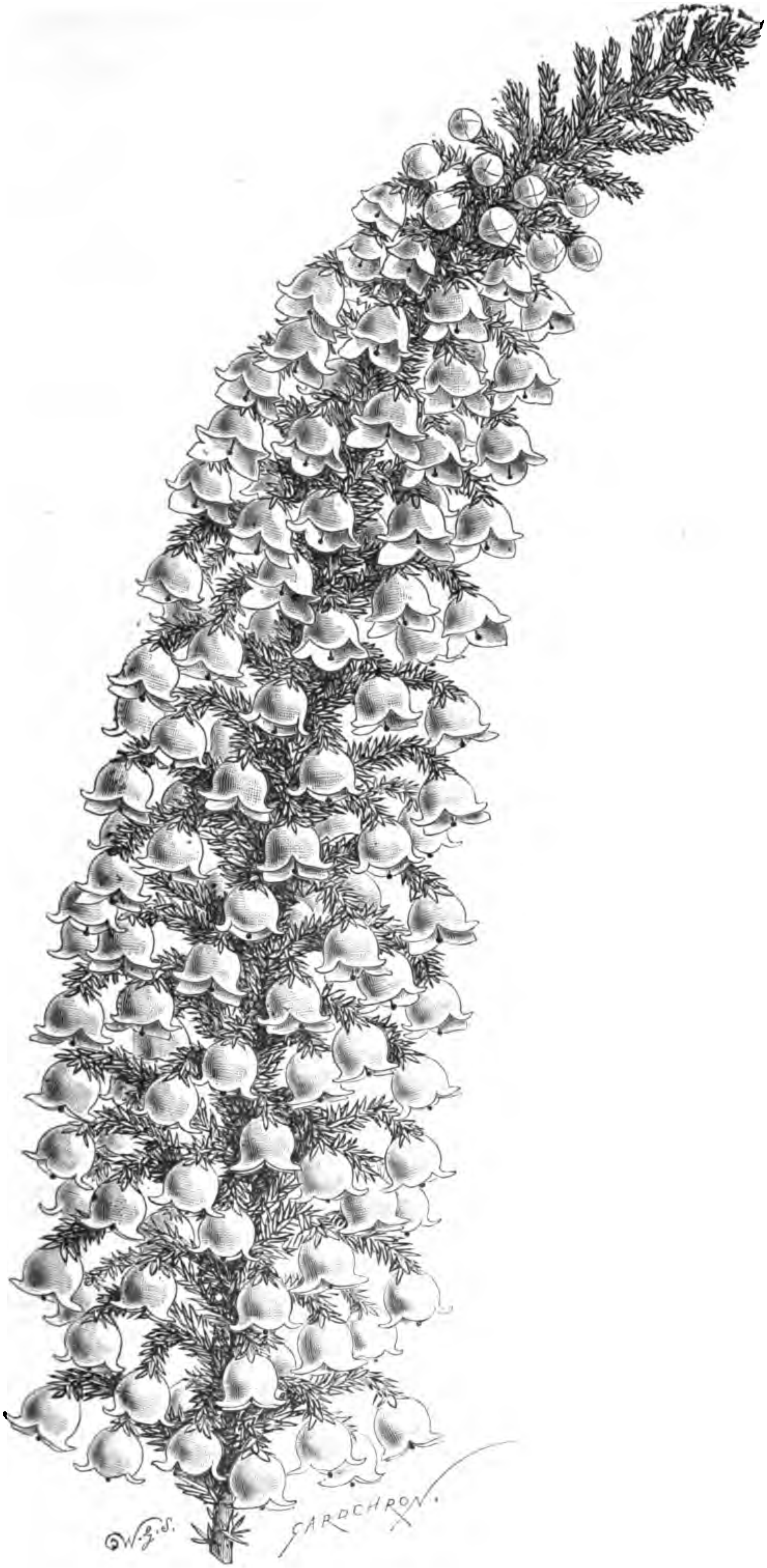


Fig. 87.—Erica propendens: colour of the flowers rosy-purple.
(See "Erica Chamissonis," p. 228.)

Probably the plant known as R. sinense was almost forgotten when it re-appeared twenty years later under its new name of Azalea mollis; and as there were known to be several coloured varieties of it, they have come to be looked upon as representing two distinct species. Whatever the origin of M. Koster's plants may have been, and I do not see any other species than sinense in many of them, they are clearly not hybrids, but colour forms of sinensis, unless he has used some of the "Ghent Azaleas" for his crosses. These have been crossed with R. sinense by several breeders, including Mr. A. Waterer and Mr. Isaac Davies. The Earl of Carnarvon also raised some hybrids between R. sinense and the North American R. viscosum. The Ghent nurserymen, especially M. Van Houtte, did much to improve and diversify R. sinense.

Ghent Azaleas are the outcome of various mixtures between the North American species, calendulaceum, viscosum, nudiflorum, &c., and the Pontic Azalea, now known as R. flavum. According to Loudon, Messrs. Lee & Kennedy were the first to produce hybrids from those species in this country. They were followed by Osborne, of Fulham, the Waterers of Woking, and Loddiges of Hackney, who enumerated 107 kinds in his catalogue nearly eighty years ago. A Belgian baker, named Mortier, also raised many hybrids and seedlings, and his work was continued by Van Cassel, Verschaffelt, Van Houtte, and others, with such success that the plants became very popular, and were known as Ghent Azaleas.

It does not appear to be generally known that R. sinense (molle) is hardy in the South of England; it is one of the most beautiful of the many fine Rhododendrons grown in the open air at Kew. *W. W.*

HOME CORRESPONDENCE.

OLD-TIME GARDENING.—Perhaps no reader of the *Gardeners' Chronicle*, when he perused the pages of the last issue, could have felt greater interest in the paragraph on "Loddiges, and Steam-heating," given on p. 213, than the writer of this note; for it called up old associations never to be forgotten. I was a gardener in those bygone days, and during the years of 1843-44, I had charge of, besides other plant-structures which were heated by hot-water pipes, a very large conservatory which was heated by steam, and in attending to my duties at all times and seasons I can call to mind, although so many years have gone by, the immense pleasure I felt in discharging the duties which devolved on me. I seemed to be in a veritable paradise, although my abode was but a bothy, and my wages twelve shillings a week. I can remember the inmates of this huge structure, some of which were 30 feet high, including some grand specimen Camellias, furnished in their season with hundreds of well-developed blooms, notably the "old double white," which was introduced into this country in 1824 as C. japonica flore-pleno alba; also Lady Hume's Blush, which was then a great favourite, as well as many others of different shades of colours. At the times to which I refer, this conservatory had been in use a great many years, and was one in which Sweet, the botanical writer, had laboured, perhaps before I had commenced my gardening career, which dates from 1832; but everything about the structure was in good working order. If my memory serves me aright, the boiler contained 500 gallons of water, and was furnished with steam and water-gauges, and all other required appliances. The steam-pipes were conveyed through a subterranean tunnel, and traversed a very considerable distance before they entered beneath the stone flooring of the conservatory. The heat was admitted to the house through numerous neatly-designed gratings fixed into Portland-stone pathways. How sweet was the atmosphere! how lovely were the numerous plants! what an enjoyable parade in winter and summer! *G. F., F.R.H.S.*

AMERICAN METHODS OF JUDGING THE CARNATION.—The American Carnation Society has lately held a convention, at which a new scale of points in judging was discussed and formulated. One hundred points is the maximum, and this number is divided as follows: colour, 25; size, 20; calyx, 5; stem, 20; substance, 10; form, 15; and fragrance, 5. This appears to be somewhat cumbrous to English tastes, but the justification is found in the fact that it appears to work well. Further, the convention takes cognizance of the nomenclature of the flowers, registering the names of new varieties, possibly with a view to prevent any confusion from synonyms; and it is intended to prepare and issue a complete alphabetical list of Carnations, with descriptions, and the names of the introducers. Something like this has been done in the case of both the Chrysanthemum and the Dahlia in this country, and seeing that the Carnation has become one of our most popular flowers, and having regard also to the fact that the National Carnation Society has now grown into an important organisation, it is worthy of consideration whether some court of appeal, such as that existing in the United States, should not be set here. There is, of course, an unwritten law of quality observed in this country, but nothing on the authority of the National Society has been set up. George Glenny's summary of qualities, excellent in their comprehensiveness, was drawn up some years ago, and was intended to apply only to exhibition flowers; since then the Carnation has become revolutionised, and an intelligent system of classification should be put forward. The idea is worthy the attention of the committee of the National Society. *Florist.*

EARLY POTATOS.—Already a seedling early Potato has been placed before the Fruit Committee of the Royal Horticultural Society, and has, of course, been remitted to Chiswick for trial. But the representative of one of our leading Potato firms recently made complaint that very early Potatos had little chance of distinguishing themselves at Chiswick when grown with a mixed collection of varieties, because they were not examined until a sufficient number of mid-season and later varieties were ready, and then the first earlier when lifted looked poor in comparison. I have expressed a wish, which I trust will be acted upon, that seeing what a wealth of late strong-growing varieties there are in commerce, and how important it is, not only for private work, but also for market purposes, that we should have the best possible of precocious varieties, the Potato trial at Chiswick next year should be limited to First Earlies only, and if so, I trust that a great effort will be made to obtain stocks for the purpose of every known good early variety in commerce. First early Potatos are largely lifted for use in an unripe condition. For that reason, one examination as to cropping capacity and size of tuber, should be made early in July, and a second and final one to test matured cropping qualities, and also cooked quality, some three weeks later. We should then have ample opportunity to discern how far the Ashleaf Kidney, for of this old variety, differences exist chiefly in name, has been ousted from its long proud position as a first early by newer varieties. *A. D.*

CAMELLIAS.—With reference to the paragraph of "E. H. S.," in your last issue, many of your readers who are not acquainted with the habits of the Camellia would be glad if he will kindly afford them information as to the best time for repotting, surfacing, and pruning the plants, these being matters not much noticed in calendarial instructions. Are all varieties equally well adapted for planting in borders? *R. C.* [Will some cultivator oblige by narrating his experience? Ed.]

SALADS IN ENGLAND.—Mr. Milne-Redhead, at p. 220 of the *Gardeners' Chronicle*, does well to ask why we so much neglect salads? I was once foreman at Sidmouth, when the hotel was a private establishment, nearly a quarter of a century ago. There was then no great difficulty in obtaining good salads there at this season, as we could winter soft bedding plants safely without glass protection. In many gardens I can give one cause why there is such a scarcity of salads at this season, and the fault is not the gardener's. Every frame and other glass protection is crowded with bedding plants, and without glass in many places salads cannot be grown satisfactorily. Much also depends upon the demand that exists, for those who have to provide a regular supply will be sure to have better materials than others who only have spasmodic calls made upon them. Then it should be remembered that a wet winter is more disastrous than a drier, though colder one, as so many of the Lettuce decay at the collar then, and are lost. In such situations as that of which Mr. Milne-Redhead writes, there should be no scarcity of Lettuces; but the question arises, do the persons interested at Sidmouth trouble about a supply? The soil of the garden is good, and the situation of the garden one of the best I ever was in. Many growers will admit that Lettuces are not a safe crop in some localities. This year we planted out some thousands of plants on sloping borders early in October, and now we have only a few hundreds left, owing to the excessive moisture. It may be asked, Why plant out Lettuces in the autumn, when failure is so probable? Those plants that are saved grow away quickly in the spring, and in hard weather it is easy to cover them with dry bracken or long litter. We cannot give all our Lettuces the protection of glass, nor is it desirable, as the spring plants in the open, when they tide over a winter, are most valuable. I am well aware that many growers sow a large area of Lettuces in August, and leave them in the seed-beds until March or April; but of course this does not provide a winter supply, though they will be valuable for spring use. But there have been great losses amongst even these, owing to new growth having been made early, and subsequently injured. But we are not totally dependent on Lettuces for salads, though there is nothing equal to them in quality. A fair salad may be made with such things as Endive, Dandelion, Chicory, and Celery; the first three, when well blanched, are not at all bad. For use in a salad, when all is cut up in the salad-bowl, for home supply I have frequently sown Lettuce seed thickly, and cut over the plants in a young state. Endives winter well; and there is no difficulty with the Batavian varieties. These plants should be plentiful in Devon and Cornwall, and with glass protection such Lettuces as Golden Queen, sown early in the year, will be ready in three to four months from the time of sowing. I fear we do not pay enough attention to winter salads, and to obtain them (Lettuce especially) needs considerable care. The season has been a most difficult one, but we certainly could grow more salads by giving them timely shelter. The best measure of success can only be obtained in our variable climate by the use of glass protection, but good judgment in sowing and planting is also required, as the plants do not winter well if too large, and small ones if late sown stand no chance. *G. Wythes.*

—— In an article in the *Gardeners' Chronicle* of April 8, p. 220, signed "R. Milne-Redhead," concerning English salads, the writer prefaces his remarks with the question, "Why do English gardeners so much neglect salads?" The writer then mentions a favourable locality in southern Devon where early salads would be easy to grow compared with other less favourable districts. Yet, notwithstanding the magnificent surroundings of choice trees and shrubs, flowering and otherwise, with conservatories, kitchen-gardens, and other accessories that go to make up a modern hotel, R. Milne-Redhead deplores the absence of the humble salad. As a case in point, R. Milne-Redhead mentions the north of France, where the climatic conditions are much worse than in Devon, and yet salads are grown in quantity, and served at each meal. Ah! that is the point, as undoubtedly the demand would be greater there than in England; or perhaps the growers in northern France can make a better turnover by growing salad than by other branches of gardening. If there really was a good and general demand for salads here at remunerative prices, there can be no doubt that hotel-keepers, who are usually keen men of business, would be equal to the occasion, and would supply good salads. Lest it should be understood by the uninformed that English gardeners cannot grow early salads, I give a list of salads with which I am supplying my employer's table, viz.—Mustard-and-Cress, Cucumber, Lettuce, Radishes, Celery, and Chicory; but then early salads are in especial request, and they may be grown under less favourable atmospheric conditions than those which obtain in South Devon. *D. C., Hanger Hill House, Ealing, W.*

PRIMULA OBCONICA AN IRRITANT.—I dare not let the foliage nor even the flowers come into contact with my skin. The irritation thus caused has been most painful, and has continued for several days. The affected skin has the appearance of blisters, and eventually peels off. I have tied a piece of linen, or put a piece of sticking-plaster over the place when it was possible, to keep it from being rubbed, which increases the irritation. *J. Mayne, Bicton Gardens, Devonshire.*

PRIMULA SINENSIS LEAVES CAUSING IRRITATION TO SKIN.—In the *Gardeners' Chronicle* of April 1 there is a notice of the above by Mr. J. R. Wilson. A few years ago, when the discussion was renewed about the skin-irritation caused by P. obconica, a gentleman from the north wrote to me, stating that he knew of a case in which this nuisance was caused by the leaves of Primula sinensis. He said he had no doubt about it, as the person who had been afflicted had no P. obconica, but only the P. sinensis. I then brought the fact to the notice of Dr. Masters, with whom I had been in correspondence about P. obconica. He replied that the fact, if it was a fact, was new to him. Now, is it not possible that there may be some source of error regarding the irritation caused by the leaves of P. sinensis? When I was living in London, a few years ago, during cold weather, both my hands became covered with a most irritating sort of eczema. The skin of both hands, palms, and backs, between the fingers and round the wrists, became dry with cracks in various places, and the itching was so great that I felt I could tear the skin off my hands with my nails. This irritation prevented me from sleeping. I consulted a docter, who told me the best thing for that sort of ailment is "Burroughs and Welcombe's Icthyol ointment," a black sort of ointment, with a peculiar odour, sold in tubes. I got some, and rubbed it every night on my hands. It did not cure the affection, but it mitigated the irritation very much. After this long story, what I am coming to is this: I had neither P. obconica, nor P. sinensis, indeed no plants whatever. In my opinion the dry, rough, and irritating affection of my hands, was the result of the cold and dry N.E. wind, for when the wind changed to a warm and moist S.W., all the affection disappeared. Here in Worthing this season, the same thing happened on two occasions. When it blew N.E., the hands became rough, sore, and extremely itchy. When it blew S.W., the whole thing went away. In this case also, I had neither of the Primulas. I write all this story because possibly the case referred to by Mr. J. R. Wilson, may be quite unconnected with any handling of Primula sinensis. *E. Bonavia, M.D.*

MARKET GARDENING IN THE CHANNEL ISLANDS: JERSEY.

(Concluded from p. 222.)

Mr. Philip le Cornu's Nursery.—The first feature one sees upon the nursery at Almorah is a broad walk which runs through the grounds. On either side are borders filled with choice trees and shrubs. This avenue, for so it really is, includes many fine specimen Coniferæ, and at stated distances are pairs, one on each side, of Silver Limes, Copper Beech, Silver Maples, Tulip-trees, Golden Poplar, Purple Sycamore, Cercis Siliquastrum, Pawlonia imperialis, Ailanthus glandulosa, Prunus Pissardi, Mountain Ash, and other species of ornamental trees, which are well established. Hardy shrubs are grown in very large quantities. Roses and fruit-trees are the specialties grown most extensively. Many of the climbing Roses are worked on the French Grifferaie stock, but for dwarfs and Teas the seedling Briar and Manetti stocks are freely used. The whole of the stock was in capital condition. Such varieties as Maréchal Niel, W. Allen Richardson, and Gloire de Dijon are grown in greatest numbers.

Much of the nursery ground is divided into squares of good size, having a row of close-growing dwarf Poplars planted between them, to afford shelter, and break the force of the winds; for here the winds are sometimes very keen and strong. In such divisions, Pear, Apple, Plum, and Peach-trees are grown, and they are in most robust health, the pyramids and cordons being all that could be desired. Where it is possible, I would advise the planting of cordons. If there be only room for one or two, use the space for just that number; but if a good length of wall needs to be covered in this way, then plant a dozen trees of a sort, and even more if it is convenient. Do not plant a dozen different sorts, so that all will be represented by a single cordon.

It is better that cordons should lean away from the sun rather than towards it; by this means the wood generally receives a greater amount of sunshine, the fruit is the better exposed, and ripens more regularly. Some of the cordons had ripening fruits upon them, but these are precocious, and it is after removal that they promise an abundant return. Pyramidal trees were also very interesting; these are almost all four years old—stout, well-formed trees, with good shoots and laterals. Well-formed standard fruit-trees were numerous; while of Peaches and Nectarines, Cherries, &c., the stock is very large, and the trees are in good heart. Cordon Gooseberries were a feature that looked very well. A great number of sorts of these are grown, and a selection can always be made of the best.

It was interesting to notice the various systems of training Mr. le Cornu had adopted: the oblique cordons on walls and wire fences, the horizontal for the margins of beds and borders, the upright and the diamond-fence pattern for various positions.

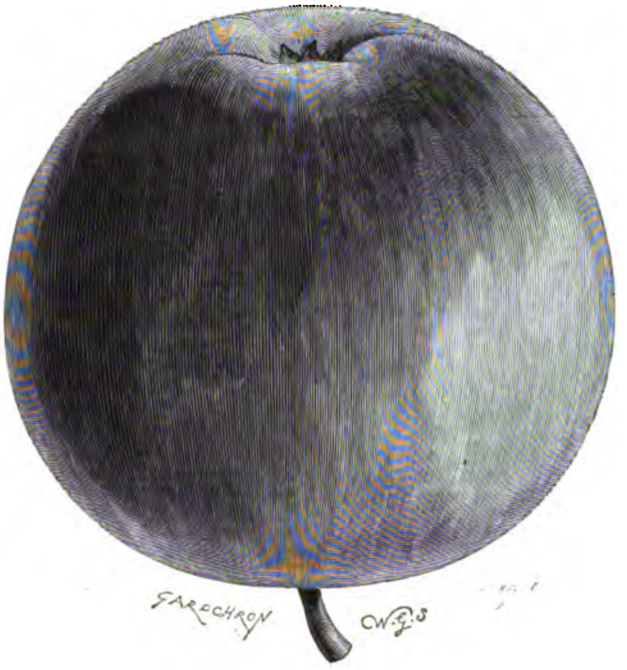


Fig. 88.—A good market apple, "Barnack Beauty."

My attention was directed to a method practised here in the matter of budding Peaches. When a bud has been inserted a Plum-bud has also been put in the same stock a little above that of the Peach. Rarely do they both fail, and sometimes both buds would take; it is then an easy matter to rub out the growth of the Plum, and preserve that of the Peach. This no-risk system is practised here in the case of many other fruit-trees and shrubs.

Herbaceous plants are given considerable attention. A large quantity of Dahlias are grown.

There is a large Spanish Chestnut-tree said to be 190 years old. It is said that the tree was planted by a silk-weaver from Spitalfields, one of the Huguenots who had fled from France, settled in London, and made a fair competency. Afterwards the family came to Jersey to reside, and brought from London a Chestnut which was planted, and has grown thus vigorously.

Of singular interest is a border we noticed, for in it each plant is a specimen many feet through, and in many instances are 6 and 8 feet high. Such specimens were Eulalia zebrina and E. gracilis. Arundo Donax variegata, many Bamboos of sorts, Phormium tenax, Chamærops excelsa, and Musa Ensete with a stem 4 feet in circumference, and leaves 8 feet in length. This Musa had remained out all last winter, with a little protective material wrapped round it.

[*From a Special Correspondent.*]

COLONIAL NOTES.

AUSTRALIAN BLACKBERRY-LAND.

Blackberries are so intimately associated with leafy hedgerows in English country lanes, that the idea of their growing in rich luxuriance in a land where the order of natural history, as known in the Mother Country, is popularly supposed to be reversed, where the stones of Cherries grow outside the fruit, and trees shed their bark instead of their leaves; yet there is nothing strange or incongruous in English wild fruits thriving in a country where every description of fruit and flower known in Great Britain thrives in perfection. The Sweet-briar, such a favourite in English cottage-gardens, grows so rapidly in Australia as to become an agricultural pest; and in parts of New South Wales the Blackberry is so prolific that the fruit is gathered by the ton, in place of the bushel or hundredweight with which English Blackberry-gatherers are familiar. The Blackberry is finest and most abundant on the coast a few miles south of Sydney; and Bulli, one of the leading coastal townships, inhabited chiefly by miners employed in the neighbouring collieries, is rapidly becoming a centre for the annual export of many tons of the delicious fruit. Rising gradually from the coast are the extensive Illawarra mountain ranges, and in not a few places on the slopes of these, on the lofty summits, and in clearings, the Blackberry bushes occupy many acres of ground. Paddocks which have been cleared and fenced, for cultivation or pasturage, offer no bar to the advance of the brambles. In more than one instance owners of land have long since ceased to fight the growth, which even bush fires but temporarily retard, so find it more congenial to lease their holdings for a small rental to the pickers, who, as a rule, have anything but an easy time of it. The bushes grow in a most irregular way, presenting in most cases a compact mass of Thorn and Briar many yards deep and several feet high. To reach every part of this mass of entanglement is the Blackberry picker's aim. Yet he succeeds in doing so, and may spend a day at one spot, forcing his way through the bushes as best he can. Generally, he will cut a narrow track to the heart of the bushes, and, establishing a centre at that point, "work" the bushes cleanly and systematically. Billies, buckets, and tins receive the fruit, which may then have to be carried some distance, perhaps right into the township, before being disposed of. Most of the Blackberry pickers are coalminers, and they have the assistance of their wives and families. The systematic gathering of the fruit commenced a few years ago. In 1894, 4 tons of Blackberries were sent by rail from Bulli to Sydney. In 1895, the quantity was 17 tons; in 1897 it had risen to 28 tons; in 1898, to 35 tons; and this year it is expected to reach 100 tons. The Blackberries are purchased, as they are picked, by a local dealer, who finds the demand already exceeding the supply. The berries are collected in carts stationed at suitable points, and sent, packed in tins, to Sydney. In some instances, 30*s*. per ton is paid for the right of entering lands and picking the fruit. Carting is estimated to cost 10*s*. per ton, and £9 6*s*. per ton is paid the pickers, being at the rate of 1*d*. per lb. That there are some smart pickers in the district may be gauged from the fact that the net gain to one family in a single fortnight has been £6. Another good family of pickers has delivered 400 lb. weight of fresh Blackberries, the result of one day's work. With the exception of Western Australia and Queensland, the bulk of the jam made from the Bulli Blackberries is consumed in New South Wales, the duty on sugar prohibiting much export. Allowing for evaporation of the water in the fruit, it is computed that one ton of Blackberries will turn out about 1¾ ton of jam, or 4,000 1-lb. tins. The greatest demand for Blackberry jam appears to be in the Newcastle district—the Australian "black country," and chief source of coal supply in the southern hemisphere. *A Correspondent.*

APPLE "BARNACK BEAUTY."

The variety of Apple, Barnack Beauty, is known to a number of gardeners, and more especially to such as cultivate Apples for market purposes. Indeed, it was to mark the Committee's sense of its usefulness in this respect that the variety was given an Award of Merit. The fruits are medium in size, or occasionally larger, greenish yellow in colour, streaked with red. The flesh is very firm, and the fruits may be kept until April or even May, and they are very valuable for kitchen use. The tree is a great bearer, and is described as upright in habit, especially when grown as a pyramid on Crab or Paradise stocks. It also forms a good medium-sized standard. The fruit sketched by our artist, and shown in fig. 88, were staged at the Drill Hall, March 14 last, by Mr. Gilbert, Dykebourne House Gardens, Lincolnshire.

LAW NOTES.

INLAND REVENUE *v.* TREEBY.

At a meeting held in Manchester, at the warehouse of Messrs. Wm. Clibran & Son, on February 23, a communication (a copy of which is given below), received by Mr. E. Collins through Sir John Wm. Maclure, Bart., M.P., was read.

Considerable discussion ensued, but eventually, on the proposition of Mr. C. Noyes, it was agreed that the appeal entered by Mr. Treeby should be withdrawn. It was thought that the view taken by the Treasury was guiding, if not wholly satisfactory, and would enable members of the trade to understand their position in taking contracts in the future, where the services of a man were required most days of the week throughout the year. The view taken, in the face of the letter, was that it would be a mistake to continue the proceedings.

The lateness of the date in sending you this communication has arisen, firstly, that the sanction of Sir J. Wm. Maclure had to be obtained for the publication of the Treasury letter; and secondly, in a letter received from the solicitor to the Nursery and Seed Trade Association, it was thought advisable not to give publicity to the Treasury letter until several points were made clearer, and steps were being taken to get a further opinion from the Treasury.

It may prove of interest to those who have followed this case, to peruse the undernoted letter, &c.— H. Watkins.

Oldfield Nurseries, Altrincham, Apr. 6, 1899.

Treasury Chambers, Whitehall, S.W.,
February 20, 1899.

"Dear Sir,—I duly reported to the Chancellor of the Exchequer the representations as to the summons against Mr. Treeby which were made by you and the gentlemen who accompanied you on your visit to the Treasury on the 13th instant, and he has now received a full report from the Board of Inland Revenue on the subject.

It was clear, both from the papers you left at the Treasury and from what passed at our interview, that it is not so much the decision in the particular case of Mr. Treeby that has aroused the apprehension of the nurserymen, as the impression evidently current in your constituency, that the decision will lead to a change of practice by the Inland Revenue with regard to the Servant Licence which will injuriously affect nurserymen generally.

I am therefore to explain, in the first place, that your constituents appear to have entirely misunderstood the intention and the effect of the proceedings taken against Mr. Treeby. It is not the practice of the Inland Revenue, and there is no idea of making it the practice, to require a licence to be taken out for a jobbing gardener employed at several places, and working one or two days a week at each; but the case brought before the magistrates at Manchester was not one of this nature. The Chancellor of the Exchequer is informed that Mr. Treeby had contracted to attend to the gardens, greenhouses, &c., of a Mr. Estcourt, which are fairly extensive, and that one man was employed for practically the whole of his working time every day on the work. It would be impossible to make a distinction between a man so employed and the ordinary private gardener, who is engaged on precisely identical duties for the same or perhaps a smaller number of hours a week, and to say that the latter is a taxable male servant because he is employed directly by his master, but that a licence is not required for the former simply because he is engaged through a nurseryman. The case was clearly, in the Chancellor of the Exchequer's opinion, one where a licence was required, and he does not think that the action taken by the Board of Inland Revenue against Mr. Treeby was in any way contrary to the spirit of the law. As to the letter of the law, he cannot of course speak with authority. He himself sees no reason to question the correctness of Mr. Yates' interpretation of the Statute, but if the nurserymen are dissatisfied with the decision, they will of course be able to test it by proceeding with the appeal of which notice has been given.

One further point requires a few words of explanation. The original intention of the Board of Inland Revenue was to proceed against Mr. Estcourt before it appeared that the gardener was not directly employed by him, and that Mr. Treeby was concerned in the matter; but Mr. Estcourt explained that his reason for not taking out a licence was that he was not the employer, as he hired the man. This was, technically, a sound defence, as it is enacted by 32 & 33 Vict., chap. 14, section 19, sub-section (4), that 'every person who shall furnish any male servant on hire shall for the purposes of this Act be deemed to be the employer of such servant.' The proceedings against Mr. Estcourt were accordingly dropped, and Mr. Treeby was asked to take out a licence. This he refused to do, and the Inland Revenue had accordingly no alternative but to prosecute him, if they were not to lose the duty on a man who was in all essentials Mr. Estcourt's private gardener. The Chancellor of the Exchequer would therefore suggest that you should explain to your constituents that, in a case similar to that recently tried, the Inland Revenue can under the law proceed only against the nurseryman, and not against the hirer of the gardener. It is for the nurseryman to make such arrangements as will prevent the cost of the tax ultimately falling upon him. In this connection, the Chancellor of the Exchequer asks me to mention quite a common case which seems to him exactly parallel. If a person hires a carriage and coachman for a period exceeding four weeks, the man from whom he hires them has to obtain licences, and it is left to the latter to recoup himself either by including the licence duty as a specific charge in the bill, or by making his terms sufficiently high to cover the payment.

"Yours faithfully, "L. N. GUILLEMARD.

"Sir John W. Maclure, Bart, M.P."

Re Alfred Taylor, Nurseryman and Florist, 62, Harrogate Road, Chapeltown, Newton, Leeds.

The first meeting of creditors concerned under this failure was held at the offices of the official receiver, Leeds, on Friday last. The summary of accounts filed by the debtor showed liabilities amounting to £239 11*s.* 7*d.*, and assets estimated to produce £92 19*s.* 6*d.* Eventually, the estate was left in the hands of the official receiver for summary administration.

SOCIETIES.

WARGRAVE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

April 5.—A bi-monthly meeting of the above Society was held on the above date. Professor Groves, F.L.S., F.R.M.S., delivered a lecture on the "Structure of Flowers."

He traced the formation and growth of a flower from its embryo stage, stating that the coloured and honey-producing parts were necessary to encourage insects to visit them for the purpose of fertilisation. The colour of the corolla was due either to coloured granules or to fluid in the cells. The structure of the anther, with its enclosed pollen grains, and their manner of growth to fertilise the ovules, was clearly explained by means of diagrams.

Mr. W. Pope exhibited several pots of Amaryllis in full flower; and Mr. W. Fullbrook a large Deutzia, entirely covered with bloom. *H. Coleby, Hon. Sec.*

BOURNEMOUTH AND DISTRICT CHRYSANTHEMUM AND HORTICULTURAL.

April 6, 7.—This Society held an exhibition of Narcissus and other spring flowers in the Shaftesbury Hall, Bournemouth, on the above date, and it is to be congratulated on the excellence of the exhibits then brought together. With the exception of Messrs. Barr & Sons, who staged a fine collection of Narcissus (not for competition), the exhibits were entirely local.

Exhibitors in the cut-bloom classes for Narcissus showed excellently, and all of the classes were filled, so that the competition in most of them was keen. Some very fine bouquets and epergnes of Narcissus were shown.

The plant classes were for Narcissus, Hyacinths, Tulips, Lily of the Valley, Azaleas, Spiræas, Cinerarias, Primulas, Cyclamen, Deutzias, &c., and some capital examples of good cultivation were noticed.

Groups of miscellaneous plants formed a special feature, and those of the nurserymen's were admirable.

The Rev. G. H. Engleheart, Appleshaw, Andover, staged some of his unnamed seedling Narcissus, including an improved form of Sir Watkin, and one that is a cross between N. Horsfieldi and Polyanthus Narcissus Grand Monarque.

A fine two-coloured Narcissus, shown by Messrs. Barr & Sons, was named Lady Willis, in honour of the lady who opened the exhibition.

The non-competitive groups and stands of Narcissus, floral designs, and plants, helped to make up a successful exhibition. Although Bournemouth is filled with visitors, neither they nor the general public visited the show as it deserved to be visited.

WAKEFIELD PAXTON.

April 8.—A good attendance of members of this Society was present, on the above date, at the Strafford Arms Hotel, Mr. Swire presiding, to hear an interesting paper entitled "Orchids for Beginners," by Mr. John T. Barker, gardener and Orchid-grower to—Berkinshaw, Esq., Hessle Hall.

READING GARDENERS' MUTUAL ASSOCIATION.

April 10.—A lecture on "Climbing Plants" was given by Mr. J. Crooke, gr. at Forde Abbey, Chard, before the members on the above date, the President, Mr. C. B. Stevens, in the chair.

In introducing the subject, Mr. Crooke said that the subject he had selected was an old one, a very wide one, and it also included a wide range of plants. The gardener, he said, should cultivate taste as well as cultivate plants, and try to get away from old methods which did not always lend themselves to present-day needs; he also said that more use should be made of native climbers, for many of these would make the dull places of the garden beautiful. The following were briefly touched upon:—Out-door Climbers—the common Woodbine, Ampelopsis hederacea, Ampelopsis Veitchi, the most popular climber of the present day; Clematis montana, C. Flammula, Wistaria, Banksian Roses, Dunbar Roses, Cotoneasters, Jasminum revolutum, Loniceras, and Tropæolum speciosum. Tender Climbers—Ficus repens, one of the best; Bougainvillea glabra, Solanum jasminoides, Clematis indivisa, Tacsonias, and Fuchsias. Annual Climbers—Sweet Peas Canary Creeper, Mina lobata, Convolvulus, &c.

The exhibits included some flowering branches of Bridgesia spicata from Mr. Ward, of Crescent Road, and blooms of Rhododendron Veitchi lævigatum cut from a plant forty years old, and grown in a 14-inch pot in a cold greenhouse; also spikes of East Lothian Stocks, from plants taken from the open ground last autumn, planted in pots and flowered in cold pits during the winter, thus securing two distinct periods of blooming. These were staged by the lecturer, who also showed Apples Sturmer Pippin and Wellington, which had been kept in boxes placed in pits 4 feet deep in the ground during the winter. The fruits were firm and sound.

ROYAL CALEDONIAN HORTICULTURAL.

The blustering month of March this year robbed this exhibition of much of the brightness the Daffodils usually create. Few of the choicer varieties came out in the best condition; they need a more genial time than that vouchsafed this spring. Even so, the largest growers could manage to secure forty distinct varieties wherewith to win the 7-guinea Cup offered by Messrs. Barr & Sons.

The prize Cup was here, as also Messrs. Barr's representative, with a capital display of Daffodils and Narcissus, including their newest seedling, the Duke of Bedford; but the other notable growers were conspicuous by their absence, or were satisfied to show Narcissus, Daffodils, Tulips, Hyacinths, &c., in flower-pots as plants. Even were April to set in with genial mood, a fortnight must elapse before anything like a full muster could be made from plants grown in the open, north of the Tweed. Turning from the muster of cut blooms of Narcissus and Daffodils in vases, we found much to comfort us in the well furnished round and other tables of private growers and nurserymen, crowded with choice Orchids, sets of forced plants in bloom, in sixes; of stove and greenhouse plants, four ditto; of greenhouse and hardy Rhododendrons, Indian and hardy Azaleas; foliage plants, table-plants, Palms, Cyclamens, Japanese Maples, Hippeastrums, Deutzias, Gueldres Rose, Lilacs, Spiræas, Lily of the Valley, perfect in foliage and flower. Primulas such as Sieboldi, obconica, and sinensis; Polyanthus, common Primroses, Auriculas, and Alpine plants made a fine display.

There were also several exhibitors of twenty-four cut blooms of Roses, and no fewer than six exhibitors of twelve Maréchal Niel, three of which were excellent; three exhibitors of a dozen blooms of Gloire de Dijon, and several of dozens of Tea and other Roses.

Bouquets, hand, shower, and button-hole, and sprays, were very choice.

The dessert consisted of one Pine-apple, two exhibits of each six pots of Strawberries, three dishes consisting of thirty ripe fruits each, the best of which were Royal Sovereign; three exhibits of Black Grapes, two bunches each; and a bright muster of dessert and culinary Apples, among the finest dishes being Normanton Wonder, Bedfordshire Foundling, Winter Pearmain, Winter Juneating, Hormead's Kernel, Pomona, Galloway Pippin, Bramley's Seedling, Newton Wonder, Hoary Morning, Loddington, Green Loddington, Striped Beaufin, Gloria Mundi. Dessert varieties of very high colour, Ribston Pippin, Cornish Aromatic, Blenheim Orange Pippin, Reinette du Canada, and Keddleston Pippin.

Notwithstanding the late spring, vegetables were well shown, and the classes for amateurs and nurserymen were well filled.

Messrs. Downie, Laird, Dickson, Cunninghame, Gordon, Methuen, Wood, and others sustained their old reputation for Rhododendrons, Azaleas, hardy evergreens, shrubs, Conifers, Ferns, Palms, &c. While Mr. McIntyre, the gr. at The Glen, was most successful, as usual, in all the classes in which he competed, his muster of four fragrant Rhododendrons were examples of perfect culture. These plants were 1 yard or more in height and diameter, and comprised the following varieties:—Lady Alice Fitzwilliam, Princess Alice, fragrantissimum, and Duchess of Edinburgh.

Among the principal prize-winners were Mr. McIntyre, The Glen, Innerleithen; F. Nicoll, Craigowan, Perth; Geo. Wood, Oswald House, Edinburgh; Geo. Chaplin, St. Leonards, Dalkeith Road, Edinburgh; David Murray, Culzean Castle Gardens; Geo. Mackinlay, The Gardens, Wrest Park, Bedfordshire; D. Kidd, Carberry Tower Gardens, Musselburgh John Cairns, The Hirsell, Coldstream; R. B. Laird & Sons Jno. Downie, nurseryman, Edinburgh, and others, in the smaller classes for cut flowers, and for vegetables.

CHESTER PAXTON.

March 8.—The closing meeting for the present session was held on the above date, when Mr. Robert Wakefield (Newton Hall Gardens), read a paper on "Hardy Herbaceous Flowers."

Mr. Wakefield has of late years been recognised as one of the most successful cultivators of herbaceons Flowers in that district, and his paper gave evidence of a very intimate knowledge of the best varieties of these hardy flowering plants.

ANTWERP.

The Royal Horticultural Society of Antwerp is the first of the numerous societies of that town to commemorate the tercentenary of the birth of the great painter, Vandyck. The show was held in the fine Concert-hall of the Zoological Society, and opened on Sunday, April 9, to the public. It was feared that, owing to the height of the building, the fine specimen-plants would appear dwarfed, yet owing to the arrangement of the lateral galleries, this effect was not produced, and the general view was excellent.

The judging was completed on Saturday by a very numerous jury, which included M. F. Benary, from Erfurt; M. De Graaf, Leyden; M. Wilke, Rotterdam; M. Dudok de Witt, Amsterdam; M. Truffaut, and M. Duval, of Versailles; M. Arthur de Smet, M. Raphael de Smet, De Smet-Duvivier, M. Chas. Pynært, M. Ed. Pynært, M. Fierens, M. de Cock, and M. Leon le Bruyn. Messrs. Gordon, W. Cutbush, A. W. Ker, and F. Ker, came from this side of the Channel. M. de Bruyn, the Minister of Agriculture, was the President of Honour; M. Marc Micheli, of Geneva, the General President.

The members of the jury were received in the most cordial and hospitable manner, as is always the case in Belgium, being entertained at luncheon after the judging; received by the Burgomaster in the evening, and entertained at lunch by Madame E. Osterrieth in her palatial town house, the pictures and curios being much appreciated, as well as the kindness of the hostess and her lady friends in making everyone welcome.

The banquet to the jury was presided over by the President of the Society, Baron Osy de Zegwaart, and supported by M. Le Bruyn, the Minister of Agriculture, the Burgomaster of Antwerp, and many members of the Corporation, and the Secretaries of the show, Messrs. Verlinden and Anatole de Cock.

The special feature of the show was its picturesque arrangement, the floor of the large hall being laid out in the most natural manner with various collections by M. Servaas de Beucker, to whom the jury awarded a Gold Medal for his tasteful efforts.

Turning to the plants themselves, the platform of the hall was occupied with a collection of fine Palms, from M. De Cock, of Ghent, and included a fine piece of Ceroxylon niveum, Kentia, Phœnix, and Cocos, &c. This group was flanked by collections of hard-wooded plants, including collections of New Holland plants, the taste for which beautiful plants is reviving. In the collection of M. Bedinghaus, which obtained the Queen's prize, were fine specimens of Clianthus puniceus magnificus, Chorozema splendens, Cytisus floribunda, Mimosa armata paradoxa, Tremandra ericoides, and Pultenæa stricta.

In M. E. de Cock's collection was Genista præcox covered with white flowers.

M. Collumbien's group contained well-grown plants of Chorozema, Leptosperma bulbatum, &c.

A nice commercial lot of Pandanus Veitchi from Mr. Kuyk, Ghent, received a Silver Medal.

M. Vuylsteke showed nice lots of Azalea rusticana plena, pyramid and standard Azalea indica, and Amaryllis, for which collection he was awarded a Gold Medal.

Madame Osterrieth gained 1st prizes for a grand lot of Azalea mollis or sinensis, among which Anthony Koster was conspicuous; for fifteen Azalea indica in half specimens; and for twenty-five smaller plants, all of which were grown to perfection; for twelve Cliveias and for one specimen; for twenty-five Azalea mollis and twenty-five Primula obconica, this success was awarded a special diploma for its merit.

Messrs. R. B. Ker & Sons, of Liverpool, gained the Gold Medals for collections of forty Amaryllis and of twenty-five, the fine substance in the flowers showing its superiority in lasting quality over the old strains. Among the finest forms were Scarlet King, fine self; Virgin Queen, a magnificent form, white ground with carmine veins; Imperial, darkest crimson; Monarch, a grand dark red; White Lady, almost white; Apollo, red, with white stripes; Midas, white, with red veins, and many others, which made a fine effect, and which, though carried from Liverpool in flower, were looking well at the close of the show. The same firm was awarded a Medal for a sample of their strain of Cliveias.

M. Joseph Vervaene gained the 1st prize for new Azalea indica, the best of the twelve being Perle de Belgique, pure white, very double, and of fine substance; Irene de Meulemeester, double pink, with white edge; Spit Fire, a fine double crimson. The above are all acquisitions to our already large collection of Azaleas.

A very fine collection of Anthurium Andreanum varieties was shown by the Société Anonyme Horticole Gantoise of Ghent, and included pure white salmon, pink, scarlet, and crimson; this lot gained the 1st award, with the congratulations of the judges.

Cyclamen papilio were shown by M. Langhe Vervaene, one with a distinct yellow fringe, others were not so nice, having a faded appearance.

M. Arthur de Smet gained several awards for his fine strains of Anthurium Scherzerianum M. Dallière, a grand salmon-coloured form; Excelsior, a vivid scarlet; A. Scherzerianum album, and A. S. Souvenir d'Antoine Chantin, dark crimson, being among the best.

Roses in pots were well shown by M. Truyman Smets, and an honorary exhibit of white Lilacs, Roses, and Hydrangeas was awarded a Gold Medal.

The collection of Orchids arranged for effect was not so fine as might have been expected. M. Pauwels was awarded a Gold Medal, but the exhibit lacked colour.

M. Hye de Crom, of Ghent, gained 1st, for twenty-five Odontoglossums, which included Elegans, Hadweni, Vinckeanum, Ruckeri gracillima, gloriosum, and excellens.

For the most varied collection of Cypripediums, M. Moens, of Lede, was 1st, and his twenty-five included nitens, Moensii Harrisianum violaceum, Stella, and Van Imschootianum.

M. Peeters, of Brussels, showed a fine group of miscellaneous Orchids, among which were found Chysis bractescens, Cattleya Trianæi delicata, Odontoglossum pardinum, Zygopetalum × Perrenoudi superbum, Eulophiella Elisabethæ, Oncidium tigrinum, Angræcum sesquipedale, &c.

M. Vuylsteke carried off the President's prize for new Odontoglossums, viz.: 1, O. × spectabile, a cross between O. Harryanum and O. crispum, with violet-brown spots on a creamy-white ground, lip white at the tip, with a violet-brown base; 2, O. × vivicans (O. Harryanum × crispum) with brownish-red markings on a creamy-white ground; 3, O. × Loochristyense, a cross between O. grande and O. crispum, with large brown spots on a pale yellow ground.

The seedlings of M. Aaron were also worthy of comment—Cattleya La Fontaine (C. Mendeli × C. guttata), Louis Chaton (C. Trianæi and Lawrenceana), Lælia Latona inverta (L. purpurata and L. cinnabarina). The collections of M. Peeters were particularly well displayed. In M. Jules Hye's lot we noted Odontoglossum excellens superbum, O. elegans, and O. æmulus Holdfordianum.

Next to the Orchids was a small class for one seedling flowering-plant, which Messrs. Ker carried off with Amaryllis Magnificent, of large size and fine shape, colour reddish-crimson, with the tips of the petals almost white. The second was an Azalea of the linearifolia section. A most curious Cliveia, with green stripes in the centre of each petal was not placed.

The Late H. T. Soppitt.

One of the most distinct plants of the show was Anthurium Hookeri, with leaves 4 feet long, exhibited by the Comte De Kerchove.

In the group of Palms shown by M. E. de Cock, and which obtained the King's prize, were superb specimens of Ceroxylon andicola, and Caryota Cunninghami.

M. de Kuyk showed a fine plant of Brahea Roezli, as well as a superb group of Araucarias. Madame Osterrieth took several prizes for Azaleas.

A pretty lot of Citrus sinensis in fruit, and of Boronia heterophylla were shown by M. de Smet Duvivier.

Altogether the show was very successful, and the arrangement excellent.

ROYAL BOTANIC.

April 12.—On Wednesday last, in the gardens of this Society, at Regent's Park, was held the annual Spring Show. The display was probably as large as that in many preceding years, but the greater part of the interest it represented must be accredited to miscellaneous exhibits from members of the horticultural trade. Despite the efforts that have been made to revive these exhibitions from the competitive point of view, they continue to decline. In none of the competitive classes on the occasion under notice was there any competition, and throughout the exhibition there were but three exhibitors in those classes. The St. George's Nursery Co., Hanwell, who had some first-rate Cyclamens; Mr. Kelf, gr. to Mrs. Abbots, South Villa, Regent's Park, who obtained a number of prizes; and Messrs. Young & Co., Stevenage Nurseries, Herts.

FROM THE NURSERYMEN.

Messrs. John Laing & Sons, Forest Hill Nurseries, London, in a very attractive group of miscellaneous plants, included some pretty Boronias, several new varieties of Azalea indica, a variegated variety of Rhapis flabelliformis, various Cordylines, Codiæums, and Cliveias.

Excellent Mignonette in pots was shown by Messrs. Morle & Co., Finchley Road Nurseries, N.

There was one group of Orchids, and in this Messrs. B. S. Williams & Co., Upper Holloway, London, N., displayed fine plants of numerous varieties of Vanda tricolor. V. t. superba, and another named Gottschalkei variety were very beautiful; the distinct form insignis was also remarked. Phaius × Norman, and various Cypripediums were included.

Mr. Thos. S. Ware, in a moderate display of Narcissi and spring-flowering plants, included several little gems of some rarity, and a tiny plant in flower of Calypso borealis, an interesting little Orchid, figured in *Gardeners' Chronicle*, April 8 1893, p. 421.

Messrs. Barr & Sons, King Street, Covent Garden, made a fine display of Narcissus, although their collection at Ditton is scarcely in full flower. We remarked several blooms of the beautiful new bicolor trumpet Daffodil Duke of Bedford, and many popular sorts.

A collection of Narcissus blooms exhibited from the Emerald Isle by Messrs. Hogg & Robertson, 22, Mary Street, Dublin. was noteworthy. The colour, size, and substance of the blossoms were most satisfactory. The Tulips, too, were fine. It should be remembered that this produce is from Irish-grown bulbs.

Cinerarias were made a specialty by Messrs. Jas. Carter & Co., High Holborn, London, whose large collection of single-flowering varieties represented a strain with large, brilliantly-coloured blooms. The double varieties, that appear to obtain less general favour, were also well shown.

Messrs. Wm. Paul & Son, Waltham Cross, Herts, showed Camellias in pots, Roses, Cannas, and a most gay exhibit of Tulips, also in pots. The Tulips were of single and double-flowered varieties. Two new ones were shown—Murillo, yellow, semi-double; and Rosa Mundi, a single flower, deep golden-yellow, marked red, of very good form.

Messrs. J. Hill & Son, Lower Edmonton, made a fine exhibit of Ferns, the tinted Adiantums, and varieties of Nephrodium being most attractive.

Cut Roses were shown only by Mr. W. Rumsey, Joynings Nursery, Waltham Cross, but there were something like seventeen dozen blooms, and the colours were bright.

There was capital produce shown of Tomatos and Cucumbers by Mr. S. Mortimer, Swiss Nursery, Rowledge, Farnham. The Tomatos represented a variety Winter Beauty, a seedling from Conqueror. The Cucumbers were the variety Sensation.

Obituary.

H. T. Soppitt.—On April 1, 1899, died at his residence, 12, Glen View, Halifax, Henry Thomas Soppitt, who succumbed, after an illness of a fortnight, to an attack of pneumonia. Born in Bradford, June 21, 1858, he was only in his 41st year when he was taken from us, leaving the world poorer by the loss of an original worker in that department of natural science in which he had made for himself a name. The subject of the present notice possessed that untiring energy and never flagging perseverance which are so essential to those who would unravel Nature's secrets. A Yorkshireman by birth, he possessed the genial *bonhomie* and warm-heartedness of his race tempered by a natural diffidence of manner that made it impossible for him to hurt the feelings of anyone. Brought up in his father's business, he resided in Bradford until 1894, when he removed to Halifax. Compelled to earn his living by an uncongenial and poorly-remunerative occupation, he managed to acquire an all-round knowledge of natural history; entomology, geology, zoology, and botany were alike to him the objects of study, and the sources of enjoyment. Devoid of personal jealousy, and ever free to impart the information he possessed to others, it is no wonder he made many friends.

In 1886 he was President of the Bradford Naturalists' Society, and for many years he was on the executive of the Yorkshire Naturalists' Union. A pleasant writer, he contributed many articles on natural history to the local press, some of which, such as his "Rural Walks round Bradford," "The Flora of the Bradford District," &c., are worthy of a more abiding place in the literature of Yorkshire. His paper in conjunction with Mr. J. A. Carter, on "The Land and Freshwater Mollusca of Upper Airedale," and his article on "Fungi," in Lee's *Flora of West Yorkshire*, are of a more permanent nature. Fond as he was of all branches of natural history, it was as a botanist that he did his most brilliant work. Possessing a sound knowledge of the flowering plants of Yorkshire, he took a special interest in fungi. Some ten or twelve years ago he began the biological study of the Uredineæ, and it is from his experimental researches that we know the life-history of the several species which had previously either been shrouded in mystery or wrongly interpreted. For instance, prior to his work, the Puccinia and Æcidium on Adoxa Moschatellina were regarded as being of the same species, but he demonstrated that the Puccinia is a Mucipuccinia, and has no relation to Puccinia albescens, which is an Auteupuccinia with Æcidium, Uredo, and teleutospores on the same host-plant. Then he cleared up the life-history of Æcidium leucospermum, showing it to be an Endophyllum. He found its spores germinated as those of Endophyllum do, and that while they were without effect upon adult plants, yet seedling Anemones became affected with the Æcidium after infection, and that the fungus had nothing whatever to do with the Puccinia fusca which occurs on the same host-plant. It fell to his lot to be the first person to demonstrate a heterœcious Puccinia which has its Æcidiospores on a Dicotyledon; this he did in working out the life-history of P. bistort, by proving that its Æcidiospores occur on Conopodium denudatum. He attacked that complicated problem, the life-history of the Pucciniæ on Phalaris arundinacea, proving that the Æcidium on Lily of the Valley belonged to one of them, which he named P. digraphidis, thereby opening a discussion amongst continental botanists as to the relative value of these specific forms, which has hardly yet been concluded. His communications to the *Gardeners' Chronicle* were mostly upon plant diseases, the last being an account of his repetition and confirmation of Klebahn's cultures of P. Pringsheimiana on the garden Gooseberry. Lactarius involutus, Sopp., is figured in Cooke's *Illustrations*, t. 1194. Dasycypha Soppittia, Mass., is named after him, as also is the genus Soppittella, one of the Thelephoreæ. His last paper in conjunction with Mr. Crossland appeared in the January number of the *Naturalist*, and contained descriptions of several new species of Discomycetes. He was present at the last meeting of the British Mycological Society, of which he was one of the original members, last October, in Dublin. He was in excellent health, enjoyed the meetings and excursions, and the meeting of old friends. From what fell from him there, it was evident that a somewhat lengthy visit to Switzerland in 1897, with his friend Mr. H. A. Pawson, where he found an opportunity of studying the Swiss flora, was one of the red-letter periods of his life. He was buried at Ecclesbill on April 4, when most of the leading naturalists of Yorkshire were present. He left a widow and four children to mourn his loss. *C. B. P.*

B. STEIN.—It is only lately that we have heard of the death, on Feb. 27, of Mr. Berthold Stein, Inspector of the Breslau Botanic Garden, in his fifty-third year. Mr. Stein was an occasional correspondent of this journal, and was much interested in the Primula Conference, held some years ago under the auspices of the Royal Horticultural Society.

M. DELCHEVALERIE.—The death is also announced of another of our correspondents, M. Delchevalerie. He was, we believe, of Belgian extraction. He took a most prominent part in the development of horticulture in Egypt, and died, according to the *Revue Horticole*, at the age of fifty-eight at Chaumes (Seine-et-Loire), France.

THE LATE DOWAGER COUNTESS DE KERCHOVE.—In common with many English friends, we offer our respectful sympathy to Count de Kerchove de Denterghem, the President of the Royal Agricultural and Botanical Society at Ghent, on the death, at an advanced age, of his mother, the Dowager Countess. Visitors to the Ghent Quinquennial will remember the gracious hospitality in former years of the deceased lady, and many are familiar with the magnificent Azaleas exhibited by her, and with the famous winter-garden which forms so great a feature in the horticultural attractions of the old Flemish city.

MYSORE.

THE subjoined extract from Mr. Cameron's report on the Government gardens and parks in Mysore for 1897-98 is of great interest:—

Hybrid Coffee.—The possession of hybrid plants on several estates in Southern India now appears to be an undisputed fact. These new forms are reported to combine, more or less, the characteristics of Coffea liberica and Coffea arabica, and are only found in localities where the two species have been cultivated and propagated together. They have not been introduced by the planters as new varieties, and were unknown prior to the introduction of the West African species Coffea liberica. It is therefore reasonably inferred that these intermediate plants are true hybrids. The most remarkable thing about them is their immunity from Coffee-leaf disease, a condition which can only be attributed to enhanced vitality in the constitution of the hybrid. This is a discovery of much importance to the planter, and will encourage him to pursue operation of crossing on methodical lines, with a view to raising improved strains of seed, as has already been done in most of the chief products of agriculture and horticulture in Europe. What should be aimed at now is the systematic crossing and recrossing of different species and well marked varieties until a really good hybrid or cross is produced. With this object a small coffee-plot has been planted in the Lal Bagh. It consists of 135 bushes in two species and one variety. Most of the plants were of a good size when put down, and it is almost certain that a few of the Liberian and Maragogipe specimens will flower early next year, when crossing operations will be commenced.

A CORRECTION.—We are requested to publish the following letter:—"Will you allow me to correct an error, into which I have unwittingly fallen, in the present issue of the *Rosarians' Year-book*, and wherein I stated that Messrs. HARKNESS had succeeded to the business of Mr. MAY in Bedale. I am assured that this is not the case; the present firm of J. & A. MAY, of Hope Nurseries, continues the business, which was purchased by them from the late Mr. HENRY MAY'S executors about five years ago, and has not only been carried on by the MAY family for three generations, but is now in a flourishing condition. *The Editor of the Rosarians' Year-book.*"

ANSWERS TO CORRESPONDENTS.

ADIANTUM FRONDS TO PRESERVE AS DECORATIVE OBJECTS: *Aden.* The fronds must be carefully laid out on herbarium or blotting-paper, under pressure, and dried, changing the paper twice or thrice a week. After this part of the process is complete the fronds will doubtless have lost some of their green colour, and it will be advisable to afford them the desired tint with aniline varnish, using this in a very attenuated form, so as not to give the fronds an unnatural shiny appearance, or to cause the pinnæ to stick together. Having drawn them through a vessel containing the coloured varnish, let them be hung up singly on hooks in a cool dry-air place. When dry, repack carefully between sheets of paper placed between the covers of a book, or a pair of boards, and set aside for future use.

BEGONIA SOCOTRANA: *J. Wilkinson.* This species being not truly tuberous, must be rested by partially withholding water, and keeping somewhat cool, but not dried off like Begonias which possess tubers. A two months' rest is sufficient for this species, or the hybrids from it. Neither should the stems be cut close to the soil, but be pruned rather severely, say to one-half or two-thirds of their length. Repotting may be performed at the end of the resting term, and when a renewal of growth seems called for. The best resting-place is the coolest part of the stove or an intermediate-house. Tubers, if they form around the base, may be made use of for increase. The plant may be struck from cuttings of the young wood taken when this has acquired a certain degree of firmness. They need a bottom-heat of 75° to 80°, and to be kept close, care being taken to prevent damping off.

BOOKS: *W. R. R. The Culture of the Chrysanthemum* (Wells), is published by W. Wells, Earlswood, Redhill, Surrey. Price 1*s.* 6*d.*

CUCUMBER LOCKIE'S PERFECTION: *G. G., Kew.* The variety was raised by Mr. Lockie, gr. at Oakley Court, Windsor, and shown by him at the Royal Horticultural Society's meeting on June 12, 1888, receiving a First-class Certificate. It is a cross between Purley Park Hero and Verdant Green.

EUREKA WATERPROOF PAPER: *E. J. Ash, Bulawayo, Rhodesia.* The paper enquired for is sold by Mr. C. A. Christiansen, Norwood Green, London.

ISLE OF WIGHT: *Guernseyman.* (1) We do not know what chance you would have of getting employment there; the area is not large. (2) The *Gardeners' Chronicle* is circulated there, as well as in Bulawayo, from which place we have received an article from an occasional contributor.

JUGLANS REGIA VAR. RUBRA: *H. Dixon, Sydney.* The plant being of Austrian origin, may be procured at the nurseries (*baumschulen*) of Mr. C. Rosenthal & Söhne, Vienna; or of Mr. Rudolf Abel, Hietzing, by Vienna.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*F. M.* 1, Pachystachys asperula (Justicia carnea); 2, a Cestrum, send when in flower.—*F., Wakeford.* 1, Cyrtomium falcatum; 2, Diplazium diversifolium? 3, Davallia dissecta var. Mariesii; 4, Platycerium alcicorne; 5, Pteris longifolia.—*G. N.* A double variety of Narcissus incomparabilis, commonly called butter and egg.—*W. E.* What you send from Launceston, Tasmania, is a species of Trefoil closely allied, if not the same as our Strawberry Trefoil, Trifolium fragiferum.—*W. G., Brighton.* An exceptionally pretty form of Odontoglossum × Andersonianum.—*Oak.* 1, Eriobotrya japonica (Japanese Medlar); 2, Ilex aquifolium Hendersoni; 3, Ilex dipyrena; 4, next week; 5, Spiræa Thunbergi; 6, Arbutus Menziesii (procera).—*W. H. H.* Your Dendrobium is a very fine D. nobile, but not D. n. nobilius, which is much darker in colour.—*C. S., Ipswich.* The Fern is Blechnum corcovadense; 2. Daphne odora (indica).—*R. W. R.* The Dendrobium nobile is quite equal to D. n. nobilius, if not from the original stock.—*W. N.* 1, Dendrobium Wardianum; 2, Dendrobium crassinode Barberianum; 3, Dendrobium crassinode; 4, Dendrobium aureum (heterocarpum).—*S. K., Wellington.* The Orchid is Cymbidium pendulum. The scarlet flower Stenomesson coccineum.—*S. A.* Yes, British; Gagea lutea. We are delighted to see an old friend.—*W. A.* The plant is a Hibiscus, but we are unable to identify the species. It may possibly be an undescribed one. If it should fruit will you kindly send us a specimen.

POTATOS WITH SCAB: *G. H.* Information on this disease will be found in a report to the Royal Horticultural Society Scientific Committee, November 8, 1898 (see *Gardeners' Chronicle*, November 19, 1898, p. 372). The form of scab is somewhat different, but the treatment required is the same. As your Potatos are already in pots, try the effects of top-dressing with flowers-of-sulphur or kainit. Remove all scabbed tubers, they will never produce healthy plants.

VINE DISEASE: *D. B.* Probably the American mildew; spray with sulphide of potassium, as recommended to another correspondent.

VINES: *D. B.* The materials were too scanty for investigation, and you should send shoots and leaves of various sizes.—*One in Ignorance.* Your Vines are badly attacked with a fungus or mould. Cut off the affected shoots and burn them, and syringe with a solution of potassium sulphide and water, ½ oz. to a gallon of water.

COMMUNICATIONS RECEIVED.—H. de W., Ghent.—F. K., Liverpool.—Editor.—W. G.—C. W. D.—D. W.—Col. T.—Dr. P.—W. Jolland.—E. C.—W. Q.—E. S.—D. T. F.—R. D.—G. W.—H. T. M.—F. W. B.—W. G. S.—H. Cannell & Sons.—H. H. D'O.—Prof. Wrightson.—Director, Royal Gardens, Kew.—G. C.—H. W.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—W. E. G.—W. G.—J. B.—Fruit Grower's Year Book (Cable Office, Hatton House, Great Queen Street).

(*For Markets and Weather, see p. x.*)

THE
Gardeners' Chronicle
No. 643.—SATURDAY, APRIL 22, 1899.

GLASNEVIN.

THERE are many botanical gardens in Europe and in Great Britain we may fairly boast of—Kew, and Edinburgh, and Glasgow, of Cambridge, Oxford, and Birmingham; but there is but one Glasnevin, and it is both from the natural and cultural points of view one of the most interesting and beautiful gardens in the northern world. There is no fact more apparent, or that strikes the historian or antiquary with more force than that, "history repeats itself," or, in other words, that old traditions of light and leading continue for ages to linger around or upon the self-same spot of ground. In this wise we are told that—

> "The literary fame of Glasnevin began at a very early period. There was a celebrated school of learning on the banks of the river Tolka, on the site of the present Glasnevin Botanic Gardens. It was founded by S. Mobi, or Mobhi, who died in the year 544.
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> The names of several abbots, his successors, are known, such as Cealtrog, ob. 741, Elphin, ob. 753, Maoltuil, ob. 882. It was, as all schools of learning were at the time and for centuries later, a religious community. Fifty scholars lived in huts by the Tolka, on the west bank. The church was then, as now, on the east bank of the river. This school had the honour of educating S. Columba after he had spent some time as pupil in the school of Clonard on the River Boyne.
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> After some years of evangelistic work in Ireland, S. Columba left his native land, and founded his great missionary college at Iona. From it, and subsequently from its offshoot at Lindisfarne, went forth, as is well known, that noble band of Celtic missionaries who spread the Gospel through a great part of England, and over much of the continent of Europe. Of one of those missionaries, the late learned Dr. Lightfoot, Bishop of Durham, after careful historical examination, declared 'Not Augustine but Aidan is the true apostle of England.'
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> On August 31, 1895, a number of English churchmen proceeded to Lindisfarne, an island off the coast of Northumberland, on the 1343rd anniversary of S. Aidan's death, that they might see the spot where his missionary work for England was organised. Now this Aidan, first Bishop of Durham, was the fellow-countryman and pupil of S. Columba. It was S. Columba's zeal which inspired his, and there can be little doubt that much of the knowledge and culture associated with his work had their origin in the master's school at Glasnevin, on the banks of the Tolka.
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> The literary fame which attached to Glasnevin in its early days revived in the last century. Thomas Parnell, the poet, Dean Swift, Addison and Steele lived there. There is reason to believe that Swift's celebrated *Drapier's Letters* were written at Delville House, Glasnevin."

The self same salubrity and native charm that tempted the early Christians in Ireland to settle beside the Tolka at Glasnevin, clings around the place to-day, and renders it so doubly attractive, and especially to those interested in botany or in gardening.

Our illustration (see fig. 90) gives a charming glimpse of the bog and water-garden, a never-failing source of delight from the time of Golden Marsh Buttercups, Primroses, Lilies, and Japanese Iris, until Marliac's exquisite rosy, sulphur, or white Water Lilies (Nymphæas) are in flower. I have seen Glasnevin at nearly all times and seasons, but never without instruction and delight, go when one may, from the earliest Aconite or Snowdrop to the latest of Christmas Roses or Chrysanthemums, and all you will wish for is more time in which to look and to admire. Outside or inside, it is all the same; all tastes are consulted, and all sorts of plants are well grown. The cool-house devoted to Ferns is now very attractive, containing, as it does, very fine examples of Cyathæa Smithi, C. dealbata, and Alsophila crinita, &c. In an adjacent house is a spendid collection of Sarracenias, containing not only all the wild species, but many hybrids reared here by Mr. F. W. Moore during recent years, and which vie in form and coloration with the finest of wild kinds. The beautiful S. Moorei × was one of the first hybrids raised in this genus, having been raised here by the late Dr. D. Moore prior to 1874 (*Gard. Chron.*, 1874, p. 702), and it still remains one of the best.

Another choice "pitcher plant" long grown here, is a fine form of Nepenthes distillatoria, scrambling like a Vine over the roof of the Orchid-house, its urns dangling gracefully overhead, and showing their crimson-red lids to great advantage. Cephalotus follicularis also grows well here in a cool-house, its clustered pitchers larger and more highly coloured than I have ever seen them elsewhere. Here, also, that rarest of all the Pitcher-plants, Heliamphora nutans, from Guiana is developing its classically-shaped urns; and there are Droseras of all kinds in profusion, and even Byblis and Roridula are represented by one or two of their quaintest forms.

I must not forget to say that one of the very few plants of Nepenthes Rajah now alive is at Glasnevin, and it was from this plant that the noble pitcher was cut which Mr. Veitch showed at the Drill Hall on the occasion of his lecture, and which was afterwards very artistically modelled for the collection at Kew. Here at Glasnevin also is the finest living specimen I know of Darlingtonia californica, having pitchers over 2 feet in height, with bloated tops and crimson-forked wings, that remind one of a cobra head when reared and excited, and about to make its deadly stroke.

The new succulent-house with its contents obtains a good deal of attention from visitors, who criticise the "Hedgehog-plants" or "fossils alive," to their heart's content. Some of the finer and rarer kinds were imported direct from Mexico and California, and are doing well in their excellent new quarters.

There is also here one of the best collections of Bromeliads, including many rare kinds; and these, varying so enormously as they do in size, form, and colouring, are well worthy of more extended culture and study. Some of these identical rarities were in the once famed Morren collection at Liège, and others were carefully selected from French and Belgian collections by Mr. Moore. It is one of the peculiarities of our insular prejudices that we do not cultivate Bromeliads more extensively, and especially the hardier kinds, which are so beautiful in leafage, and would lend themselves to room and window culture almost as well as the Aspidistra, and better than do many Dracænas and Palms.

I think it is to Glasnevin we must go in order to see Philesia buxifolia 5 feet high and 8 feet across! Such a specimen is, as I suppose, absolutely unique, and is always good to see, either with or without its drooping coral bells or flowers. This plant is a shrubby or non-climbing first cousin of the Lapageria, and its hybrid is Philageria Veitchi ×, raised at Chelsea, and remarkable as being the first bigeneric hybrid named in an intelligent and logical manner, as showing its dual parentage.

There is here a specimen of Araucaria Rulei, 20 feet in height, very fine Browneas, and in the Palm-house the great tropical Bamboo is luxuriant, reaching a height of 70 feet (fig. 91).

Most visitors note the superb specimens of Irish Yews, and the celebrated old Yew-tree walk, associated with the name of Addison, and beautifully figured in Dr. John Lowes' work, *The Yew Tree in Great Britain and Ireland.* The original Golden-Leaved Yew still exists here at Glasnevin.

We often hear complaints as to the difficulty of growing Daphne Blagayana successfully, but there is a clump or tuft here in the utmost health and beauty, at least 8 or 9 feet across, and bearing hundreds of its sweet white and dense-tufted blossoms. Mr. Moore tells me the only secret is good red loam and plenty of stones over its roots and branches, but I never see this charming shrub so luxuriant elsewhere.

The herbaceous borders are already flowery, despite the recent gales, and the hardy Ferns are uncurling their croziers on the rock-garden devoted to them, and there is a golden light on the Willow shoots, as seen against the grey-blue sky.

Beauty of form and colour everywhere; on gold-fruited Ivy, on tree-trunk, lichened-rock, and mossy-stem, but a glance at the dial says *tempus fugit*, and we pass on to where the Misleto hangs in great olive-green masses from the Pyrus and other trees, and admire once more the perennial beauty of the hardy Ericas so well represented here. One plant o E. mediterranea cannot be less than 10 feet high, and is very lovely in colour. E. vagans, ramulosa, or stricta, carnea in variety, and hybrida, all are here, and they are all beautiful all the year round. These hardy Heaths are so beautiful that the wonder is they are so seldom planted near rocks and stones, on banks, or even in shrub-beds, where autumn and winter effects are desired.

To leave Glasnevin without a word about the Orchids would never do, for they are here a specialty, the genera Masdevallia and Cypripedium being very fully represented, as also are those exquisite little waifs and strays in this order that the late W. Wilson Saunders and his henchman, Chas. Green, loved and grew so well. It seems a pity to me always when at Glasnevin, that the "Refugium Botanicum," or portrait gallery for inconspicuous or botanical rarities, was discontinued, but if you whisper that to the genial director Moore, and he thinks you are appreciative, he may untie his portfolios and show you Miss Shackleton's exquisite colour studies of these his favourite floral gems. Amongst many Masdevalls the rare and peculiar little M. ventriculata longicaudata is now in bloom.

One of the most distinct and remarkable, as well as one of the rarest of all known Orchids, viz., Moorea irrorata, was named in recognition of Mr. Moore's ability in connection with Orchids new and rare.

Glasnevin is indeed a garden to see, and see again and again, and much; indeed, most of its interesting richness and value is due to its present and previous directors, father and son, both of whom have worked well and nobly in the public service during the past half century or more; and to their high-toned endeavour is due the fact that Glasnevin holds its own amongst the highest and best of the botanical gardens of our time. *B.*

NEW OR NOTEWORTHY PLANTS.

THAMNOCHORTUS INSIGNIS.*

We take the opportunity of describing and illustrating (fig. 93) this species, as its branching spikes and shining pale chestnut-coloured bracts render it very attractive. It is a native of the southern portion of the Cape Colony.

ORCHID NOTES AND GLEANINGS.

CŒLOGYNE CRISTATA.

"One day," says Mr. Maries in a communication to the *Journal of the Royal Horticultural Society*, "I came across masses of Cœlogyne cristata [at Naini Tal] at an elevation of about 3000 feet. The ground was covered with frost at noon. The branches of the evergreen Oak were covered with Cœlogyne—rather a cold place. It shows how hardy the plant is."

Dendrobium Wardianum.

Each spring some of the newly-imported plants display occasional flowers on the growths made in the plant's native habitat which cause great admiration in the beholders, but which are not to be found subsequently. These abnormal flowers usually appear on very stout pseudo-bulbs, which, if the plant had been left undisturbed in its native home, would have produced a greater number of flowers, each proportionately smaller. In the case of the new arrivals, the stored-up energy necessary to perfect the larger number is thrown into the lesser, with the natural result that the individual flowers are more than usually large.

Captain G. W. Law-Schofield, New-Hall-Hey, Rawtenstall, reports some phenomenal blooms that verge upon 5 inches in diameter, with fine colouring. He sends us a flower in which the two dark-coloured blotches, usually seen in the species, are reduced to a few almost invisible purple lines just under the column. The tint of the disc is also different, being of a Buttercup-yellow instead of orange. In other respects the flower is that of a good ordinary form, segments white, with rosy-purple tips.

The next question is, will it remain constant? It is known that in the white forms of D. Wardianum, which also show a suppression of colour on the lip, the extent and intensity of the colour occasionally are found to vary in the same plant from year to year.

Captain Schofield mentions the fact that many growers fail to keep Dendrobium Wardianum in good condition for any length of time, and enquires as to the cause. Is too much or too little heat given?

The Dendrobiums of this class require a high degree of warmth, much moisture, and a bright light—even a good amount of direct sunlight when growing; but a rest, long, dry, and cool afterwards. Probably fruitful causes of the loss of these deciduous species of Dendrobes are too much warmth, and too close an atmosphere when they are not growing.

Perhaps some of our readers who have mastered the idiosyncrasies of D. Wardianum, so as to be enabled to keep it in unabated vigour for a number of years, will kindly describe their methods.

Dendrobium Ainsworthi ×.

It is interesting to read in the *Orchid Review* that this plant has flowered with W. Thompson, Esq., Walton Grange, Stone, among a batch of imported Dendrobium nobile. The artificially-raised Ainsworthi has thus its parallel in Nature.

Dictionnaire Iconographique des Orchidées.

The last two parts which have reached us contain coloured figures and descriptions of: Angræcum sesquipedale, Thouars; Cymbidium eburneo-Lowianum var. Armainvilliense, Cogniaux; Cypripediumexul, O'Brien; C. Morganiæ, Rchb. f.; Miltonia Roezli, Nicholson, var. alba, W. Bull; Oncidium varicosum var. concolor, Cogniaux, var. Rogersii, Rchb. f.; Trichopilia coccinea, Warscewicz; T. crispa, Ldl.; T. fragrans, Rchb. f.; T. suavis, Ldl.; Cattleya Maroni, Hort. Maron; Cochlioda vulcanica splendens, O. Froebel; Cyperorchis elegans, Blume; Cypripedium insigne, Wallich; C. i. nigrum, F. Desb.; C. i. Sanderæ, Rchb. f.; C. Zampa var. Eurydice, Cogniaux; C. Calypso Oakwood var.; Epidendrum falcatum, Ldl.; E. atropurpureum, Willdenow; Miltonia Binoti var. intermedia, Cogn.; Oncidium maculatum, Lindley; and Trichopilia suavis, var. alba.

Orchids at Clare Lawn, East Sheen.

The collection of Orchids belonging to Sir Frederick Wigan, Bart., is noted for the steady progress which it has made in recent years, and the number of fine varieties and hybrids added to it. At the present time an unique plant of Lælio-Cattleya × Digbyano-Trianæi, which was illustrated in the *Gardeners' Chronicle*, January 1, 1898, is now again in bloom. The flower has since that time improved in substance and in the depth of the bright rose-pink hue of its petals and finely-fringed lip. Few hybrids show the value of the hybridist's work better than this one, the second cross between Lælia Digbyana and forms of C. labiata, and raised by Messrs. Jas. Veitch & Son. In flower in the same house are plants of Dendrobium × Sibyl superbum (bigibbum × Linawianum); Cattleya × Louis Chaton (Trianæi × Lawrenceana); several home-raised Spathoglottis × aureo-Viellardi, with yellow flowers spotted with crimson; a well-flowered plant of Epidendrum Stamfordianum; Dendrobium fimbriatum oculatum, D. albo-sanguineum, and other Dendrobiums; and as instances of excellent culture, a plant of Cælogyne pandurata, growing on a raft measuring 5 feet by 2 feet, which had borne six noble flower-spikes; Dendrobium atro-violaceum with fourteen leading growths; the singular Megaclinium falcatum, with numerous remarkable flattened flower-spikes, bearing on each side rows of singular-looking flowers; and the tiny Eria extinctoria, which blooms here every year, is sending up its flowers at the present time. At one end of the house is a group of fine specimens of Oncidium ampliatum majus, laden with its bright yellow-coloured flowers.

The largest of the Cattleya-houses showed a group consisting of Cattleya Schroderæ, which is fast becoming a favourite; some good Dendrobiums, among them a fine form of D. × splendidissimum grandiflorum, D. nobile, Hutchinson's variety; the best form of D. n. Cooksoni, and some others. On one side a noble plant of Lælia cinnabarina with seven flower-spikes was remarked; the true Lælia præstans from the Downside collection—a very different flower from the modern importations of the plant; varieties of Lycaste Skinneri, including the pure white-flowered one; two plants of Trichopilia suavis alba, Aërides Warneri, and other rare plants.

The warm-house in which the Phalænopsis are cultivated, and in which more than 700 flowers could have been observed at one time, is a reputedly safe place in which to put any heat-loving plant. Suspended near to the door are two superb plants of Eulophiella Elisabethæ, a plant whose flowers are white, which the majority of cultivators fail to grow satisfactorily. The plants at Clare Lawn under Mr. Young's care are very vigorous, and carry leaves 3 to 4 ft. in length on old and new growths alike, and fine spikes of flowers. In this house, numbers of Cypripedium barbatum, thickly set with flowers, are planted on the stage in sphagnum-moss. Cypripedium × Henry Graves, in bud; C. Rothschildanum, with stout spikes; a lot of C. Lawrenceanum, C. Chamberlainianum; a fine plant of C. callosum Sanderæ, bearing two spikes; and some other species. In this house Vandas, Bolleas, Pescatoreas, and other plants of that reputedly delicate nature thrive.

The rockery, partly planted with Ferns and species of Ficus, is a much admired house at this season. On the highest points are placed great specimens of fine varieties of Cymbidium Lowianum. The plants are always grown in the position they now occupy, and in the winter are often subjected to a very low temperature for an Orchid, but without the least ill effect.

In a small house, containing some special plants, the rarer forms of Miltonia vexillaria, including the plant of the magnificent M. v. Memoria G. D. Owen, are thriving, and the last-named and some other plants sending up flower-spikes. Here, too, are a fine Miltonia Bleuana, two splendid plants of Cypripedium bellatulum album, fine plants in flower of Epidendrum × Endresii-Wallisii and E. Wallisii, and a large number of plants interesting and rare, or remarkable for fine condition; and especially a fine batch of unflowered Lælio-Cattleyas, stated to be of high reputation.

In the cool-houses Masdevallias and Odontoglossums make a good display, among the latter a very distinct hybrid called O. × Golden Sheen, with bright citron-yellow flowers, the segments having a white base, thin lower halves spotted with dark red; also a peculiar form of O. × Adrianæ, and a few other spotted kinds. Specially noteworthy were Nanodes Medusæ, Cymbidium Devonianum, with four stout spikes; Ornithidium sophronites, which was carrying thirty-six of its pretty scarlet flowers; and several plants of Cymbidium tigrinum, grown and propagated here from the original plant, that was acquired at the sale of the Day collection.

MARKET GARDENING.

HARDY FRUITS: THE PLUM.

(Continued from vol. xxiv., p. 380.)

Loudon, in his *Arboretum*, says the Plum is not indigenous to England; but in the 1855 edition of his *Encyclopædia* he states there are several varieties of Plum found wild in Britain, and I incline to that belief, as a form called the Bush or Waterloo-Mogul of East Kent, is common on the chalk hills of Kent around Wye and Brook, near Ashford, as well as on the cretaceous formation that stretches along both banks of the Lower Medway to Rochester, and these form the favourite habitat of the Sloe (Prunus spinosa); other counties may have this variety as a native. There is no doubt that the Plum, except in its confessedly Oriental varieties, is one of the hardiest of our fruits; and from a culinary point of view, next in utility to the Apple. I may show undue partiality, but maintain that there is a no more delicious fruit, produced without glass, or often even without the aid of a wall, than the old Green Gage, though that delicious fruit is considered by some as a simple wilding, because it makes a reliable and prolific tree on its own roots, but even when worked it is apt to drop its branches when heavily laden. No stone fruit has been so markedly improved as the Plum, and some sterling kinds have been added to our list during the last twenty years, especially among the

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* *Thamnochortus insignis*, Mast., sp. nov.—Elatus, culmis erectis teretibus crassitie pennæ gallinaceæ albido-puncticulatis; vaginis culmeis circa 8 cent. long, arcte convolutis coriaceis apice laceris; inflorescentia feminea 5—30 cent. long, lineari, pluristachya paniculatim cymosa; spiculis singulis approximatis ascendentibus ad 3 cent. longis oblongis basi spatha lanceolata coriacea ferruginea spiculâ ipsa dimidio breviore suffultis; bracteis sursum increscentibus acutatis spathæ conformibus; floribus circa 5 mill.; segmentis externis lateralibus profunde alatis obtusis, cæteris minoribus oblongis; ovario obovoideo stylo simplici superato. Riversdale, coll. *Rust*, 399a! 406, 407!

Gages and profitable market varieties. The late Thomas Rivers may be credited with at least a dozen new ones, while our latest additions and novelties have reached us from Japan, and are included with the Cherry-Plums, being similar to the well-known Cherry-Plum "Prunus Myrobalana;" and if they succeed here, will precede, at any rate in earliness, our most precocious varieties.

The Sloe has been thought by some botanists to be the parent of our round Plums, but anyone with mouth awry (?) after tasting one will be slow to think so. The oval or egg-shaped kinds are referred to an oriental progenitor. As, however, this fruit varies greatly from seed, I think we need not go so far to account for the many sorts now in cultivation, though history tells us various kinds of Plums were introduced about the time that the English, under Henry of Lancaster, were driven out of France, not long before the war of the Roses had broken out, arresting civilisation and progress for nearly a quarter of a century. Without romancing I will suggest that a gardener-soldier brought home some Plum-stones from the plains of Orleans, and sowed them on his return to England; while at the time of the Crusades we probably got the Eastern sorts, either through Italy or Spain.

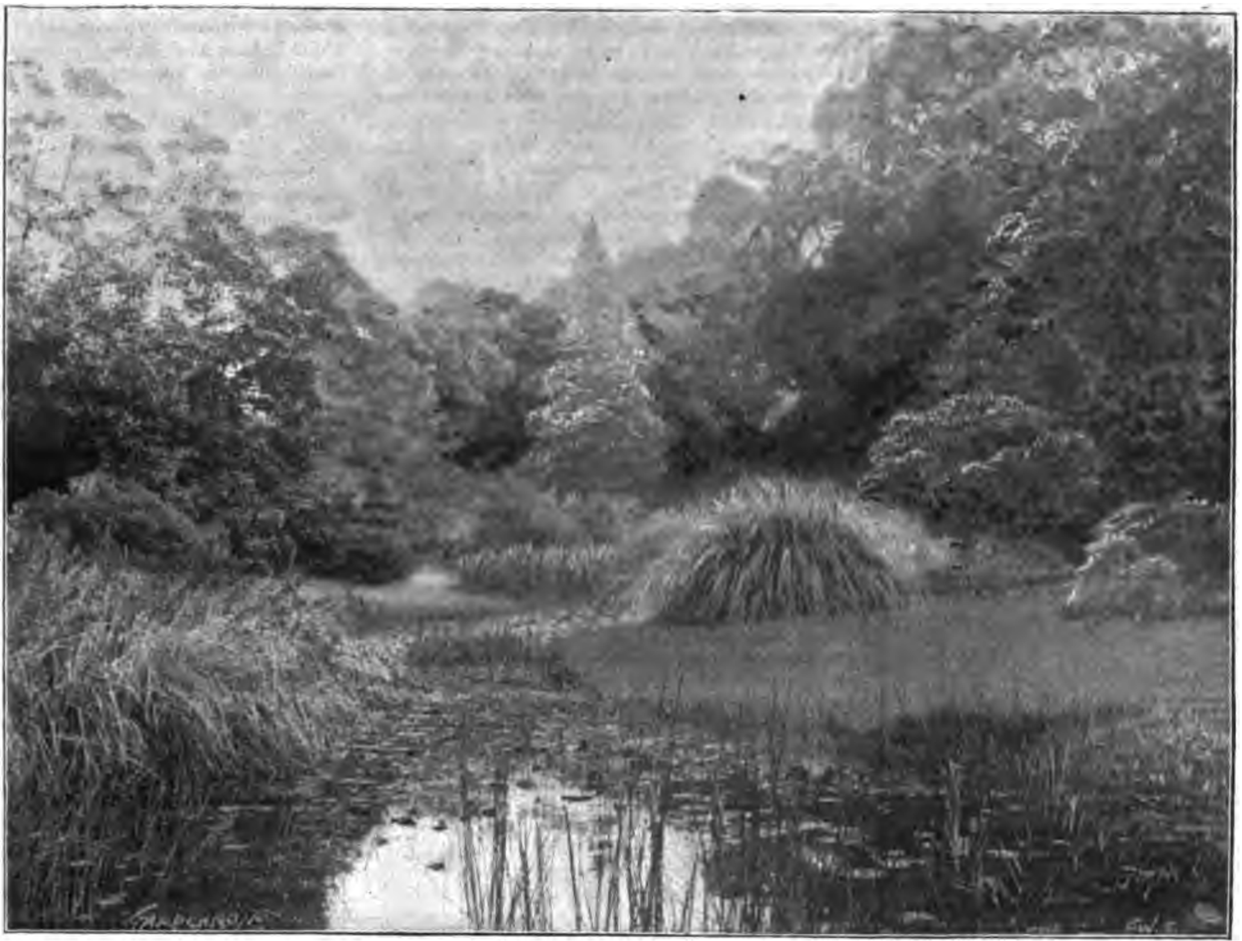


Fig. 90.—The "People's Garden," Botanical Gardens, Glasnevin. (See p. 241.)

We know the Gage Plums are called in France "Reine Claude," through having been introduced into that country by the Queen of Francis I., named Clauda or Claude; while its current English name is derived from the family cognomen of the Gages, who first introduced and cultivated it here. The celebrated Thomas Cromwell introduced in his commercial career many kinds during the early part of the reign of Henry VIII.; while the Damson, as its name imports, reached us from Damascus, hence Damascine, now Damson.

As a culinary fruit the Plum takes a high position, and beginning with Rivers' Early Prolific, and ending with the west-country sort called Wyedale, the season is prolonged from July to November, and by adding the latest Bullaces, and beginning with the Myrobellas, or Cherry-Plums, it will be no exaggeration to say we have fresh Plums for half the year.

When the drying process is better understood and practised we shall hear no more complaints of glutted markets, and good fruit being allowed to rot on the tree, because it does not pay to gather it. Alas! I have seen lanes in East Kent strewn with good Plums blown from the trees which overhung the hedges, but as this was previous to the starting of country jam factories, I hope such is not the case now. French Plums and Prunes are two qualities of dried fruit, produced in large quantities in Alsace, in the Rhine Valley, and also in Servia, along both banks of the Danube. But we are getting finer fruit lately from California; and I do not despair of home produce in time coming to the front, if only the fruit-farmer will grow the proper varieties, and adopt the most approved methods of curing.

Plums may be grown as standards, or as natural bushes, and do not require the amount of pruning and attention that other fruits demand, as they naturally form fruiting spurs along the main branches which only require to be slightly thinned, and any crossing shoots removed, to render the tree abundantly fertile. Some varieties, as Denyer's Victoria, are so prolific, that the branches often break with their weight of fruit, and such should, therefore, be grown as bushes or pyramids; while others, as the Washington, Magnum Bonum, &c., form stiff, upright trees. Damsons should be planted round the orchard or plantation as a shelter from the wind, and may even be placed in the hedges, where they will make lucrative screens.

As a rule, those Plums which permit the stone to be cleanly removed are the best, the "clingstone" section being mostly fit only for culinary use or jam-making; but the fence which divides these is rapidly being removed by hybridists, and we now have Plums of high quality, that are not perfect free-stones, but why this difference is so patent a fact I should much like to know.

I will divide Plums into simply—I., Dessert; and II., Culinary varieties; but I must here interpolate the note that some sorts which, grown in the open, are merely fit for cooking, are often very good from orchard-house trees, or from S.W. and W. walls, especially if left on the trees till they begin to shrivel; examples, Coe's Golden Drop, Prince Englebert, and Mitchelson's, and, best of all, Blue Imperatrice. *Experience.*

(To be continued.)

Market Gardening in the Midlands.

For a century or more market gardening has been a distinctive feature of the rural industry of East Bedfordshire. There the lower greensand and the Oxford clay meet, and the alluvial lands formed by the river Ivel—a tributary of the great Ouse—are largely composed of the sand from the greensand hills and of the Oxford clay, the resulting soil being well adapted to the requirements of the market-gardener. About the middle of the century several circumstances combined to give a fresh impetus to the market-gardening industry in this district. Not only was the demand for such produce rapidly increasing, but the farmers were still restricted to a certain limited rotation of crops by the covenants of their leases, and were consequently prevented from catering for the vegetable markets, even if they had wished to do so. In the forties the Great Northern Railway Company ran their main line through East Bedfordshire, and thus opened up to that district the London market and the northern markets. Later, the London & North-Western Company ran their branch line from Bletchley to Cambridge, intersecting the Great Northern at Sandy, and thereby opened up to the same district the markets west and east. In these favourable circumstances the industry flourished and extended, and there were soon thousands of acres under market-gardening cultivation in this part of the country.

This industry has been affected by the agricultural depression in several ways, but chiefly by calling forth a competition with the market-gardeners on the part of the farmers. The latter, who had previously looked down rather superciliously upon the industry that had been carried on mostly by holders of only a few acres, were now glad to turn to any new crop or new system of culture that would help them in their difficulties. Landlords were compelled to cancel their restrictive covenants, and to allow their tenants to grow what crops they pleased. The result is, that many a farmer now gives a considerable number of acres to the production of what was once practically the monopoly of the market-gardener. Moreover, market-gardening proper was taken up in many parts of the country which the railways had opened up to the great markets. Then came the still increasing competition of the foreigner, due largely to the same causes—the universal agricultural depression, and the increased facility of carriage.

But the market-gardening industry of East Bedfordshire has continued to flourish and to increase, in spite of both home and foreign competition. Those engaged in it are men of energy and resource. Untrammelled by the agricultural traditions of the farmer, they have known how to move with the times, and to adapt themselves to the requirements of new circumstances. They have met competition by constantly improving their methods, by introducing new crops, by anticipating or even creating new demands, by unstinted manuring of their lands, and by pushing their productions into all accessible markets, both home and foreign. They have retaliated upon the foreigner by sending their productions to the Continent; and fresh green produce has even been sent from Bedfordshire to America. So rapidly do their methods change, that fathers of middle age find themselves obliged to accept innovations forced upon them by their sons. Were our farmers to take a lesson from these market gardeners, we should hear much less than we do of the ruin of agriculture.

Just now these market gardeners have a fiscal grievance of which the public will hear more than it has yet heard; and the public, in their turn, are beginning to fear that the heavy manuring of large tracts of land, to which the market gardeners are compelled to resort in order to maintain a high degree of fertility in their land, will become a source of danger to health.

The fiscal grievance is this. Many successful market gardeners are liable to the income-tax. They pay a high rent—on the best lands from £4 to £6 an acre; while the farmer's rent is low, often averaging not more than £1 an acre. The farmer pays income-tax upon only one-third of his rental, the market gardener upon the whole of his. At the same time, now that the farmer is free to grow what he pleases, he, with his low rental and his low income-tax, can, and often does, compete with the market gardener by growing the same stuff. The market gardener very naturally asks why he should pay three times as much income-tax as the farmer upon land which both crop in the same way? Practically, when the farmer's rent is £1 per acre and the market-gardener's £4, the latter pays twelve times as much income-tax as the former; but, of course, this does not touch the principle in question, though it makes the grievance all the sorer. Market-gardeners who appeal to the local commissioners are told that they are not "farmers," though they may hold as much land as some of those who are classed as "farmers," and they get nothing by pleading that the legal terminology that differentiates "market-gardener" from "farmer" is now obsolete. At least one case has occurred in this district in which the market-gardener has refused to pay, and has suffered distress to be levied upon his goods.

The other difficulty referred to above is one which does not admit of so easy a remedy. With high rents and very heavy labour bills—some of the crops requiring almost constant attention, the market-gardener is compelled to crop his land as often as possible, and to make each crop as abundant as possible. In order to do this, he must use enormous quantities of manure, both natural and artificial. Much of the land receives every year, or nearly every year, from thirty to forty, or fifty, or even seventy tons of manure, mostly of farmyard or stable manure. Hence the tilth-soil is nearly always heavily charged with putrescent matter, or matter imperfectly decayed, and not only malodorous, but likely to be foul with dangerous germ-life. And this state of things extends for miles and miles, and also immediately surrounds the villages. The moisture drains through the earth into the springs, and contaminates the wells. Moreover, the demand for constant supplies of manure appears to necessitate the constant presence on the railway-sidings of lines of trucks filled with stinking and rotting stable and other refuse. This condition of things is now attracting serious attention, and offers a problem very difficult of solution. The sooner the problem is vigorously attacked the better. That it is insoluble no one need fear; nor that the market-gardeners will fail to attack it in the most resolute and intelligent way. The public affected by it is themselves, and the small towns and villages that mainly depend upon the market-gardening industry. The men who have shown themselves able to meet the world's competition successfully, are not likely to be beaten by a difficulty at their own doors. *A. Ransom.*

FORESTRY.

THE HOME NURSERY.

(Continued from p. 104.)

Management.—What, then, are the conditions essential for ensuring well-ripened wood? Probably the weather is the most important factor in this connection, and we know that a hot, dry autumn is the best ripener of seed and wood that we can have. But the weather is, unfortunately, not under our control, and it is not, perhaps, at all times possible to get exactly what we aim at without it. But we can exercise a very considerable control over another important factor in plant growth, viz., soil, and it is with this that anything that can be done by artificial means must be carried out. Agricultural chemists roughly divide manures into three classes—nitrogenous, phosphatic, and potassic, and their effect upon plant life generally is pretty well known. Nitrogenous manures stimulate growth, while the mineral manures favour seed production and the elaboration of those substances in the plant which enter so largely into seed—carbo-hydrates. In the use of nursery stuff these products of assimilation are not needed for seed production or rather flower-buds, and are available for stem and leaf growth, and if we can by any means favour their formation and accumulation, we ensure in a great measure the following year's growth. It is evident, therefore, that stimulating manures, or those which contain large quantities of available nitrogen, are less likely to produce hard, well-ripened wood than those in which mineral matter, such as potash and phosphates, predominate; and the former of these (potash) is an important factor in the production of starch. In heavy soils, potash is usually plentiful enough; but in light ground, its application in the form of kainit, wood-ashes, &c., proves highly beneficial. Whatever nitrogen is applied to nursery crops should either be in the form of farmyard manure applied to a previous farm or garden crop, such as Potatos or roots, or in the form of a green-crop dug in. Well-rotted vegetable-mould also makes a good dressing in soils deficient in humus, but if the ground can be spared, nothing is better than farmyard manure, applying it to an annual crop before the nursery stock is put in. In some soils, slaked lime or chalk also acts well, and good loam can never do harm. In short, slow-acting manures of any kind are more likely to produce stout, healthy plants, than forcing manures, which induce a quick and sappy growth. It is a great mistake, however, to go to the opposite extreme, and keep nursery ground in poor condition, for half-starved plants are never favourable subjects for transplanting.

Stoutness rather than length should be the aim of the grower, and this is best assured by regulating the supply of soluble plant-food in the manner indicated. Dry, sandy soils are more easily managed in this respect than heavy ones, and the former should always be chosen for most nursery crops in preference to the latter. Judicious manuring, clean ground, and plenty of room between the plants, will usually mean properly-grown and rooted nursery crops, providing we limit ourselves to those species which have a reasonable chance of success in the soil and situation. *A. C. Forbes.*

DECIDUOUS CALANTHES.

Those species and varieties of Calanthe which are deciduous, viz., C. Veitchi, C. V. splendens, C. V. alba, C. Victoria Regina, C. burfordiensis, C. bella, C. Sedeni, C. Sandhurstiana, C. Harrisii, C. revertens, C. nivea, C. Bryan, C. labrosior, C. luteo-oculata, C. rubro-oculata, and C. aurantiaca are among the most useful flowering stove-plants in cultivation, their arching racemes of flowers making them very effective when contrasted and arranged with Palms, Ferns, and foliage plants. Generally where many varieties are cultivated, a succession of flowers may be kept up during the period from November to April, and the flower-spikes, when severed from the plants, last for several weeks when placed in water and kept in a cool apartment.

The plants require annual repotting, but the exact date for the operation is difficult to determine, although the most suitable time is when the new growths are a few inches high, there then being no danger of the young roots being injured. My practice is to turn the plants out of the pots and shake them out of the old soil, cutting off the dead roots to about 1 inch in length, the stumps of these helping to keep the pseudo-bulbs steady in the soil till fresh roots emerging seize upon it. Previous to re-potting, the base of each pseudo-bulb should be carefully examined for scale insects, which if not removed at this period may cause endless trouble all through the growing season. They may be easily eradicated now with a stiff brush, and suds made of soft-soap. Where the space in the glass-houses is limited, or where a great quantity of cut bloom is required from a small space, I would recommend putting four or five of the strongest pseudo-bulbs into 6-inch pots, and the same number of smaller bulbs in 5-inch ones. Many cultivators pot Calanthes singly, a plan which has its advantages, as during the growing season the bulb can, when necessary, be treated separately, and when in bloom nicer arrangements are possible. The flower-pots made use of should be either new or clean old ones, and they should be half-filled with clean crocks, with some sphagnum moss placed on top, or in place of this a layer of very fibrous soil—an important point, as Calanthes require much water during active growth. The soil should be of a firm retentive nature, yet of such texture that the roots can enter it easily, or it will become sour in a short space of time. Good turfy loam answers the purpose best, and may be used in the proportion of three parts, the remaining part consisting of well decayed Oak-leaves, coarse silver sand, and some finely-chopped sphagnum-moss, the whole being well incorporated. Some gardeners mix decayed cow-dung in a dry state with these ingredients, but it often induces the growth of a kind of white fungus, injurious to the plants. For this reason weak liquid-manure is to be preferred when the plants are well established and in need of assistance. In potting the plants, the soil should be shaken down till it is moderately firm, and brought to within an inch of the rim; the plant being then placed on the surface and more soil added, pressing this with the hand firmly on to the old roots, burying the base of the plant ½ inch, and making the surface level.

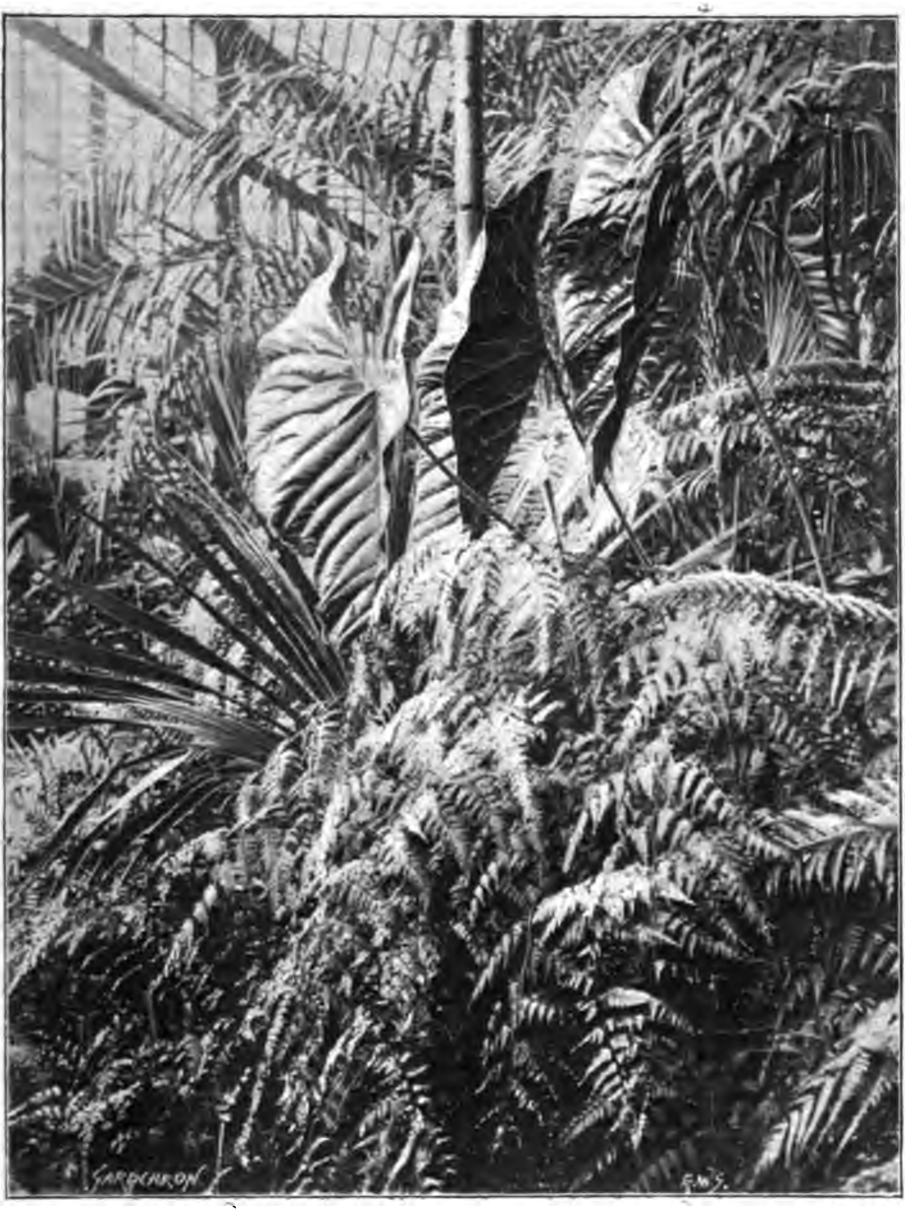


Fig. 91.—A view in the Palm-house, Botanical Gardens, Glasnevin. (See p. 241.)

After potting the plants, place them in what Orchid-growers term the best and lightest position in the East-Indian house, although Calanthes may also be grown to perfection in Pine-stoves and Cucumber-houses. Let no water be afforded to the soil for several weeks, which is a point of practice that inexperienced gardeners should pay attention to, because a wet soil at that stage will cause the tips of the young breaks to turn back, impairing the health of the plant, and showing its ill effects the whole of the season of growth. My practice is to keep the plants dry, and only to damp between the pots twice daily till growth has advanced, and then to lightly sprinkle the soil occasionally with a fine rose watering-can. Under this sort of treatment the roots soon approach and seize upon the side of the pot, by which time growth has made considerable progress, and water may be gradually increased in quantity. When the plants are quite established, some roots appear on the surface of the soil, calling for a layer of fresh turfy-loam to be placed lightly over them. This additional soil promotes healthy growth. During active growth the Calanthe should be afforded abundant aerial moisture, much heat and light, but no strong direct sunlight, this last being permitted only when the new bulbs begin to form, and then only in a very gradual manner, so as in time to inure the plant to sunshine, which may amount to full exposure by the time that the pseudo-bulbs are full grown. Towards the end of the autumn, when the foliage acquires a yellow tint, the amount of water must be gradually diminished, until the season of flowering is over.

Deciduous Calanthes may readily be propagated by removing the old back pseudo-bulbs, and inserting them in flower-pots filled with sphagnum-moss, standing them, preferably, on a shelf near the glass, and lightly sprinkling the sphagnum-moss when it has got dry. The pseudo-bulbs will soon begin to make growth, and they may then be re-potted as previously advised. The varieties that flower later in the year than those previously named, such as C. Regnieri, C. Stevensii, C. Sanderiana, C. Williamsii, and C. gigas, greatly prolong the season of Calanthes, and for that reason if for no other they deserve general recognition.

Calanthes, when at rest, should not be placed in a low temperature, but rather stood close together on a shelf in one of the warmest houses, and be kept quite dry at the root. Calanthes thus treated will start anew in the spring season with increased vigour.

Seedlings raised from sowings made last year may now be potted off, placing them to the number of five or six around the rims of very small pots, which should be hung up near the roof of a warm, moist house, and be afforded the same kind of treatment as that advised for the mature plants. If any Calanthe-plant is bearing seed-capsules, let it stand in a sunny position; and when the seed-capsules begin to take on a brown tint a piece of tissue-paper should be tied loosely around each, in order to prevent the loss of the seeds. By the time that the seed is ripe many of the plants that are now being re-potted will have made a considerable number of roots, and the seed may be sown on the pots that contain the best-rooted plants. Until it germinates, the soil should not be afforded much water, but should be merely kept moist by an occasional sprinkle. Under favourable circumstances the seed will have germinated in about three months, but the seedlings must not be disturbed before the spring following. *W. H. White, Burford, Dorking.*

NURSERY NOTES.

MESSRS. W. BALCHIN & SONS, HASSOCKS' NURSERIES.

The Hassocks' Nurseries always afford interest and instruction to the visitor, especially in the spring months, for the houses contain a very varied collection of plants, many of them hardwooded. If one would see the beautiful blue-flowered Leschenaultia biloba major, he should go to Hassocks at that time of the year. We have seen recently, at the Royal Horticultural Society's meeting, some of the splendid examples of Boronia heterophylla produced there. Plants not seen in any other nursery are grown here with great success. Amongst them, besides those named above, are Tetratheca ericoides, or more properly, T. pilosa, can be seen in good-sized densely flowered specimens, literally wreathed with its festoons of charming mauve-purple blossoms. Time was when this plant was grown into large sizes for exhibition purposes, but is now rarely or never met with at a flower show. The blossoms have the additional attraction of fragrance. There could be seen many small plants of this striking Australian shrub, for it is in demand, and there are plenty of small two-year-old plants of Boronia heterophylla, in company with finer examples of an additional two years' culture. What strikes the visitor about all the specimens, and especially the small ones, is the size and brilliancy of their blossoms.

Two distinct types of Boronia megastigma can be seen here, the one a form that was brought out a few years ago, is of a tall, distinctly erect, stiff growth, like the common Broom; the other the delightful semi-pendent elegant form we sometimes see exhibited from this nursery. It is this type which is so largely propagated, a light coloured, or what, without much stretch of the imagination, might be termed a white form of this fragrant plant is probable, for as many as three small specimens have each produced a shoot bearing blossoms of this colour, and it is intended to propagate them. Small plants of this species, one year from cuttings, were laden with blossoms.

B. serrulata is found there in large examples; also many small ones. This appears to be capable of propagation at Hassocks with as much ease as any soft-wooded plant. Some quarter specimens of Erica Spenceri, the flowers deep rosy-pink, afforded charming patches of colour; and E. perspicua nana, soft pink, a vigorous grower, dwarf and free; a specimen of the pretty E. propendens, which came to the fore at a recent meeting of the Royal Horticultural Society, though by no means new, was also in fine bloom, and no doubt destined to find a congenial home in these nurseries where the greenhouse Heaths do so well.

A fine specimen of Darwinia macrostegia (tulipifera) grandly grown and flowered, affords another illustration of the hard-wooded plants cultivated here, and now there are no large exhibitions in or near London in May and June, the "Tulip-bearing Myrtle" is not seen in such form as it once was. What is cultivated here as Acacia cordata is an erect close-growing subject, carrying in great plenty long vertical spikes of pale yellow flowers; one specimen with almost countless flower-stems was fully 4 feet high and as many as 3 feet through.

A very large stock of the finely variegated hybrid Campanula Balchini, illustrates what a most valuable subject it is for decoration. It was raised from C. isophylla alba × C. fragilis; every leaf is broadly margined with white; it is most valuable for forming an edging to a plant stage. Grown in a gentle warmth at this season of the year, and in full exposure to the light, a brilliant reddish tint pervades the points of the shoots, and adds greatly to its decorative value. Partaking of the character of growth of C. isophylla alba, it will presently become covered with blue flowers, and is thus an excellent companion. As a basket plant, it would be difficult to name one superior to it. Streptosolon Jamesoni was remarked in fine bloom. There must be something in the atmosphere of Hassocks which imparts such a rich reddish-orange colouring to the flowers of this plant.

There is a large batch of seedling forms of Richardia Elliottiana, but so far they do not afford indications of any departure from the type. Some fine forms of Hippeastrum were in bloom, large, and of handsome shape; and a batch of seedling Diplacus glutinosus, from which much is expected, has yet to flower. There is a large batch of Humea elegans, which is always in brisk demand. Other plants in flower were Azaleas, viz., Bernard Andre alba, a very fine white; Cocardeau Orange, rich crimson-salmon; Empress of India, rosy-salmon, a charming variety; Madame K. de Wissen, a very fine white, &c., all profuse of bloom.

Of decorative plants, there were Lilium Harrisii, Freesias, Astilbe, Richardia in variety, Hydrangeas, especially the variety Thomas Hogg, &c. *R. D.*

THE WEEK'S WORK.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

The Chrysanthemum.—The plants earliest struck and now standing in 48's, being sufficiently well-rooted may be shifted into 32's. The strongest plants should be taken first, but if on being turned out of their pots any are found to be insufficiently rooted, such should be returned to their pots for repotting in a week or ten days. The compost for this potting may consist of three parts turfy loam, one part flaky leaf-soil, and one part rotten manure from a spent hot-bed or Mushroom-bed, together with as much coarse sand as will keep it open. The soil should be made moderately firm in potting the plants, and the latter put into cold frames, keeping them rather close for a few days, and then removing the lights in the daytime. The potting-soil being in a properly moist condition, the plants will scarcely require any water for six days. Before the tops of the plants reach the glass, the frame should be raised by placing a brick or two under each corner. Plants struck late should be potted in 48's when nicely rooted, and placed in a cold frame.

Violets.—The propagation of Violets for winter-flowering should now be undertaken. For this purpose, the strong side-growths or short-stemmed runners that are found upon plants which have been grown in frames should be pulled off and planted in a not too sunny or dry place, at a distance of about a foot apart. If there is a doubt about the soil being sufficiently good, some short rotten manure should be forked in before setting out the runners. A mulch should be afforded the plants in dry weather, and water when necessary. What runners appear should be removed early. A sprinkling over-head in the evenings with a water-pot or the syringe will be beneficial in dry weather in keeping the plants healthy, and checking the attacks of red-spider. The syringe with an elbow-nozzle is the best implement, as by it the water can be directed under the foliage, where spider most do congregate.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury Gloucester.

The Alpine Garden.—If a garden, or part of a garden, for the display of alpines is properly formed and suitably planted, it usually forms an interesting and charming spot. It is best when it is partially or wholly masked from view, the small rocks usually employed in making it being better adapted to the cultural needs of the plants than to produce effect. So small and dwarf in growth are some of these plants, and many of them gems, that it is advisable to grow them as single plants than to plant in masses. In forming an alpine garden, a position fully exposed to sunlight, and as much raised above the surrounding level as possible, should be chosen. It is also important that no trees or big shrubs should be near it, as the roots of these would impoverish the soil. The form of the rockery may take the form of high ridges intercepted with paths, and these ridges may be planted on either side, varying aspects being chosen to suit the various species of plants. Thorough drainage is essential, and a soil varying in depth from 2 to 3 feet. In this body of soil they root deeply, and once established no drought has any effect on them. Any kind of stone, excepting shale or ironstone, about 2 to 3 inches in thickness, and that is capable of withstanding frost, may be used to form the pockets, as the receptacles for holding plants are called. These stones should be buried edgeways to part of their depth. It is necessary to successful culture that the soil afforded each plant should be suited to its needs, some need lime in some form, some sand, fine gravel, broken slate, and some thrive with the least modicum of soil, and seem to subsist on the moisture present on the surface of fissures in rocks, as in the case of Phyteuma. Some of the species will thrive in any porous loam mixed with decayed Oak-leaves, sand and sharp grit. Many of the tender plants withstand hard frost if kept dry, which can be done by placing a sheet of glass on the edges of the rock, thus covering the plant, whilst admitting light and air. All succulent plants, especially the Sempervivums, of which there are a number of beautiful and distinct varieties, should have the soil made very porous by mixing limestone or soft red brick, broken small, with it. Many of the mossy Saxifrages form lovely cushions of greenery, and those which form rosettes throw up lovely pyramidal panicles of flowers. The alpine varieties of Phlox amœna, P. procumbens, and P. setacea, Aubrietias, Veronicas, and Androsaces, which trail and hang over the stones of a rockery, make showy masses when in flower. The species of Sedum, Hepatica, Lithospermum, Dryas, Erodium, Globularia, Iberis, Gentiana, Erinus, Drabas, Dianthus, Papaver, Soldanella, Ajuga, Lychnis, Linaria, Iris, Funkia, Campanulas, Anemones, Acænas, make excellent plants for an English alpine garden. Species of Crocus, Cyclamen, and other small-blooming bulbous and tuberous plants give an interesting display of forms and flowers during a greater portion of the year. Many of the coarser alpines are more suitable for, and thrive better in the borders of herbaceous plants. Most alpines may be removed and divided or planted at the present season. Those which cannot be divided must be increased by means of seed or cuttings.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore Maidenhead.

Hoeing Fruit Quarters.—When the surface is sufficiently dry it is well to hoe the ground in order to check the growth of small weeds, which are germinating fast after the recent rains. Where the ground about the trees and bushes is not mulched, this hoeing will act in a two-fold manner by keeping moisture in the soil as well as by killing weeds. A small quantity of freshly-slaked lime scattered about under the fruit-bushes at this season is beneficial, and will to some extent assist in keeping the attacks of insect pests in check.

Mulching Raspberry-beds.—The roots of the Raspberry coming to the surface of the soil in considerable numbers, are apt to suffer in medium and light soils in times of drought, at least that is the case in the warmer parts of the country, unless mulched with decayed manure while the ground is still moist. Liquid manure from stable-tanks, &c., may also be poured on the land with advantage at this season. Red and Black Currant-bushes may be similarly treated.

Birds and the Fruit-buds.—The harm done to the fruit-crops by tom-tits and bulfinches is becoming worse every year, the recent mild winters having doubtless increased the numbers of birds. The Preservation Act passed by Parliament has likewise helped in this direction. In the Taplow district the buds of Pear, Cherry, and Gooseberry have already suffered badly; some trees of the first-named were quite denuded of their flower-buds when these were in a somewhat advanced stage. I have noticed that this spring the sparrows have been more than usually destructive to Pears and Gooseberries especially, while the small tits and bulfinches have been as great depredators as ever. Applications of Quassia-liquid, petroleum-emulsions, or of lime-wash have had only a partial effect, and after a few days they seemed to lose their deterrent power.

Terminal blossom-buds.—Owing probably to the hot weather experienced last summer and autumn, fruit-buds developed in a more than usual degree on the young wood of the same season's growth, in many instances Pears and Apples being freely studded with fruit-buds where wood-buds are usually formed. This applies chiefly to Pears on wall-trees and bushes, and to Apples. The extension of the growth is thus likely to be checked if the flower-buds at the ends of the principal shoots are allowed to remain. It will be advisable, therefore, to examine the shoots forthwith, and remove these flower-buds. This is more than usually necessary in the case of young trees of the Pear on walls.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

"Mossing" the Plants of Phalænopsis.—The species of Phalænopsis which flower in the winter having begun to make roots, the stale sphagnum-moss may be replaced with new, any delay in doing this being injurious; indeed, it is advisable to perform this operation on the whole of the species. Baskets which are in sound condition will need nothing further than to have the sphagnum-moss picked out, dead roots removed, and to receive a new coating of living sphagnum-moss; whereas, decayed baskets should be treated in the following manner: first, remove the whole of the sphagnum-moss and crocks, then immerse the basket in water for the space of two hours, then proceed to remove the bars by first taking out the corner pins, and with a thin-bladed knife liberate the roots, an operation made easy by the immersion. In order to place the plant in a new basket, the better method is to remove one or two of the bottom bars, and draw the leaves upward through the basket to the required height, and replace the bars; then insert a sufficient number of crocks, to do away

with the need of a large body of sphagnum-moss. Of late years, I have made use of the pot-shaped baskets, and find that owing probably to the increased rooting-space these afford, the plants have outstripped others placed in the ordinary square baskets. In order to plant a Phalænopsis in one of the pot-shaped receptacles, it is necessary to undo the encircling wires, so that the roots be not injured by introducing them between the bars. It facilitates the removal of the stale materials about the roots if water be withheld for a few days previously; and that which cannot be picked out with a sharp-pointed stick, may be dislodged with water and the syringe. For a considerable period of time the disturbed plants should be sparingly afforded water by means of a fine rose-can, dipping being unsuitable before the roots have permeated the moss. The temperature of the house should now be increased to 75° by day and 68° as a minimum by night, and all available spaces damped once a day, the atmosphere being kept sweet by judicious ventilation. When sunlight is bright, some amount of shading is necessary. When the weather seems likely to be clear, the baskets and the undersides of the leaves should be gently sprayed with tepid rain water, which will obviate the necessity of affording frequent application of water. Phalænopsis Esmeralda should have the lightest, and P. speciosa, Luddemanniana violacea, and other kindred species, the most shaded portion of the house.

Dendrobium Wardianum and D. crassinode were grown last year in these gardens in the Cattleya-house, and the plants did better than when in former years they had been grown in the East Indian-house. The plants are now in a forward state with roots only just about to appear, that is, at that stage when it is the safest to replace the old material with the new. The most suitable compost consists of good fibrous Orchid-peat and sphagnum-moss. When the job is finished afford a copious application of water, and hang them where the syringe may be used amongst them in hot weather, and the shade is not very dense.

Dendrobium Victoria Regina.—The blue-flowered Dendrobium and the pretty hybrid D. × Cassiope are most at home in the Cattleya-house, hung up on the shady side. Neither requires a long rest-period, and less water should be afforded during the winter.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Tomatos.—The forwardest batch of plants raised from an autumn sowing, are ripening their fruits, and will with fair treatment continue the supply until the fruits are fit for use on the new-year sown plants. Water must be afforded with care, particularly in bright sunny weather, for if the soil be allowed to get unduly dry, and is then afforded water freely, many of the forwarder fruits may crack, and be spoiled. It is far safer to maintain the soil in an uniformly moist state than to alternate from wet to very dry. Fruits that are fit should be gathered on alternate days and placed in the fruit-room till sent to the kitchen. All useable fruit should be plucked before it has become dead ripe. If the white Tomato-fly attack them, paint the hotwater-pipes with flowers-of-sulphur in lime-wash, which is a first-rate remedy, if they are heated sufficiently to give off an appreciable amount of sulphurous vapour. If Cucumbers occupy a portion of the house, however, I would not advise the use of sulphur, as it affects foliage badly sometimes. If the Tomato crop is heavy, apply manure, and top-dress with fresh soil in small quantities. Suppress all superfluous and lateral growth so as to divert the sap to the fruits. Spring-sown plants, if growing and fruiting freely, will need plenty of moisture at the root, and to be neatly tied to stakes or to the trellis. From four to five trusses per plant will be sufficient for a crop on single-stemmed plants, the leader being stopped as soon as the latest truss of flowers is visible. A stimulus either in the liquid state or as a powder may be applied, following the rule of little and often rather than in strong doses. Over-vigorous plants must be afforded only clear water, but this fails sometimes on account of a large border, or excess of manure or leaf-mould in the soil. The best kind of soil is a turfy loam, with only a small proportion of charred soil. This will usually grow Tomatos successfully under any condition, manure being applied only when the roots have occupied the whole of the soil. As a rule, the Tomato in private gardens does not obtain so much attention as other fruits, nor are the conveniences for growing the plants all that they should be, and seldom is a house set apart for growing and fruiting them. They do best when planted in a border, or if grown in pots these should be stood on coal-ashes or other material into which the roots may penetrate. For supplying a late crop, a sowing may now be made, if a suitable position can be set apart for them in the autumn. During the summer months plants may be fruited in the open air, grouping them in 12-inch flower-pots, and placing these on planks in the front of a south wall. No plant put out of doors in pots should be allowed to root into the soil, as when removing to the glasshouses a great check is inflicted. If the seeds are sown in boxes, and they are thinly scattered, the plants may be potted singly, with good bulbs of soil attached to each. Such plants grow more sturdily, fruit earlier, and give much less trouble than those which stand thickly in the seed-pan, and require careful handling and shading for some days after their roots have been so disturbed. The Mustard-and-Cress fashion of sowing Tomato-seed cannot be too severely condemned, resulting as it does in great loss of time, much labour, and poor results. The practice of starving Tomato-plants with a view of bringing them into early bearing is a mistake. At this season it is a waste of time to shift Tomato-plants periodically, and once well established in 60's, they may be shifted directly into their fruiting-pots, making the soil very firm. Growth will then be sturdy, and the crop a good one. Do not crowd the plants, as it tends to late fruiting.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Spent Crops.—No time should be lost in clearing the land of the stumps of Brussel Sprouts, Broccoli, and of all exhausted crops, as to leave them would impoverish the soil needlessly. As a rule Celery may follow these, and early Potatos. If the latter, dig the land of a good depth, breaking up the soil as finely as possible so as to prevent the tubers being ill-shapen, and dig in plenty of well-decayed manure if the land is in need of enrichment. The trenches for Celery should be dug out not too deeply, and the top spit put at the bottom, and covered with a layer of rotten manure. The distance between the Celery-trenches should be from 5 to 7 feet, 5 for early crops and single lines, and wider for double lines and later crops. The ridges may be cropped with French Beans, Lettuces, Spinach, and Turnips, or any vegetable or salad plant that matures rapidly. Any Celery still in the trenches should be dug up and laid-in on a north border, the ridges levelled, and the land made firm, in readiness for being sown with Peas or Runner Beans, &c.

Carrots.—In the colder parts of the country and on heavy, adhesive soils, the main crop of Carrots should be sown without further delay, or as soon as it is in a suitable condition for sowing. Before anything else is done, the drills should be sprinkled with fresh soot and wood-ashes, useful in warding off attacks of the maggot. Carrot-seed sown early on a warm border having now germinated, the Dutch-hoe should be passed between the rows, and if weeds are appearing these should be drawn out by hand and taken away.

Broccoli. — Make sowings of the main crop varieties, and in a fortnight a second sowing, Knight's Protecting, the Ledsham (one of the latest), Goshen (also late), Model, and Methven June are very trustworthy varieties. Let the seed be put into shallow drills drawn at 9 to 10 inches apart, and if convenient let the seed be well in the open, so that the plants may grow sturdily and short legged, a very important matter. The soil of the seed-bed should be made firm, and the seed well coated with red-lead, first damping it with a little milk or linseed oil. Keep a sharp watch on the bed, and should the slugs make havoc with the plants, dust the soil daily with soot and wood-ashes. A good kitchen gardener is always on the alert, and will require no instructions in regard to this matter by the head gardener.

Early Cauliflowers.—The plants from the spring sowings should by this time be large enough to lift with a ball, and plant on a warm border. They should be taken up and planted with a trowel with as little root disturbance as possible, loosening the surrounding soil, and fastening the root mass firmly. Cauliflowers differ from Broccoli, and require a fairly light rich soil. The plants wintered under handlights should now have almost complete exposure, the tops being put on the glasses when frost is expected. It will soon be prudent to remove them altogether.

THE APIARY.

By Expert.

Methods of Dealing with Brood.—In early localities something may be done during the present month towards equalising the deposits of brood in the various combs of the brood-nest. My ideal of a stock when ready for supers is that it be filled with brood or eggs from side to side, and top to bottom, excepting at most a few days' supply of food in case of a serious reverse of weather. Bee-keepers should work up to this ideal all along, and whether the hive contains four frames or fourteen, each frame should conform to its requirements. Whatever operations are necessary during the month, care should be taken to keep the brood-nest warm, and even moist. Winter packings must not be removed till the bees require more room. Water-troughs, fitted with moss or tea-leaves, may be placed in sheltered sunny spots about the apiary, and kept regularly supplied with water, if there are not convenient drinking places close by. If, however, running watercourses are near at hand, it is a waste of labour to provide troughs, and bees will pay no attention to them.

Feeding.—Good stocks will soon be well "under weigh." Brood-rearing will be making rapid progress, and when natural pollen can be gathered, the stimulus already acquired will be continued, even without any care on the part of the bee-keeper. Honey from natural sources will, however, be scarcely obtainable in sufficient quantity for the needs of stocks for weeks to come, and attention must be given even by those who wish to do as little as possible, that the prosperous condition of breeding stocks may be continued without a check until the honey harvest opens. Artificial supplies by means of a feeder must be given in all cases where want is threatened. Those who wish to stimulate all they can, and do not grudge the trouble, will keep on uncapping a few inches of sealed stores daily in each hive, or maintain a constant though slow supply of very thin syrup through the feeder. Care must be taken that no more syrup is given than the bees require for present use, and should they be found to have got too much, the supply should at once cease, and the knife be applied frequently to the sealed combs. In using the knife do not remove the comb from the hive, nor even cut the caps from the cells. It is quite easy to force all the bees down by smoking, so as to leave the sealed portion of the comb visible, when the flat of the knife may be drawn firmly over the cells, or the surface of the capping scratched, the lids being only bruised. This avoids trouble from daubing honey about, and leaving portions of loose cappings to be used by the bees to form connections between their combs.

BOOK NOTICE.

A Text-Book of Agricultural Zoology.—By F. V. Theobald, M.A. (Blackwood & Sons).

This is a little book treating of "the life histories, the habits, the peculiarities, of all the animals which affect for good or for evil, our stock and crops, whether on the farm or in the garden, and the structure and development of domestic animals." It is clearly impossible in a little volume of 500 pages to explain the peculiarities of all the animals with which the gardener or the farmer is concerned, but it is remarkable what a large amount of information the author has been enabled to compress in his limited space. The illustrations are, generally speaking, excellent and relevant. An appendix on the prevention and destruction of insect-pests, is a valuable feature of the book, which is one which should find a place on the shelves of every agricultural student.

EDITORIAL NOTICES.

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, April 22—Royal Botanic, Meeting.

SUNDAY, April 30 { International Horticultural Exhibition at Mont St. Amand, Ghent, Belgium, continued to May 9.

SALES.

TUESDAY, April 25 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, April 26 { Clearance Sale of Orchids and Stove Plants, at The Gardens, Bisterne, Hants, by order of the Rev. Cecil Mills, by Protheroe & Morris. Japanese Lilies, Palm Seeds, Roses, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

FRIDAY, April 28 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 9 to April 15, 1899. Height above sea-level 24 feet.

1899. April 9 to April 15.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	At 9 A.M. Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 9	W.N.W.	45·8	42·6	54·1	34·5	0·30	45·5	47·2	46·5	24·5
Mon. 10	S.W.	54·8	51·6	59·8	43·0	0·25	47·8	46·9	46·5	42·2
Tues. 11	N.N.W.	42·9	40·7	47·6	40·1	0·02	47·8	47·4	46·5	28·5
Wed. 12	W.	41·5	37·8	51·5	30·9	0·05	45·5	47·2	46·8	23·5
Thu. 13	S.E.	43·0	41·9	49·5	38·9	0·22	46·3	47·1	46·8	31·5
Fri. 14	W.N.W.	42·7	41·5	47·1	41·0	0·12	46·5	46·8	46·8	38·1
Sat. 15	W.N.W.	45·8	43·1	51·9	40·6	...	46·2	46·8	46·8	35·5
Means...	...	45·2	42·7	51·6	38·6	Tot. 0·96	46·5	47·1	46·7	32·0

Remarks.—A dull and almost sunless week, with cold winds and much rain.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—49 6°.

Actual Temperatures:—

London.—*April* 19 (12 p.m.): Max. 61°; Min. 39°.

Provinces.—*April* 19 (6 p.m.): Max. 57°, Norwich; Min. 41°, off St. Andrews.

Royal Horticultural Society.

Out of the ten or more meetings of various kinds held on Tuesday last, at and in connection with the Royal Horticultural Society, none was of more significance for the future than that presided over by Mr. Elwes. Those who are familiar with the history of horticulture in general, and of that of the Royal Horticultural Society in particular, will call to mind the services which were rendered in olden times by the collectors sent out at the cost of the Society. Specially brilliant were the services of Douglas, hardly less so those of Fortune. After a time the practice was discontinued, mainly on account of financial difficulties, but partly because the great nurserymen undertook the work for themselves. Then arose the passion for Orchids. Collectors were, and still are, sent out in numbers. So numerous and so industrious are they that it is no idle fancy to dread the extinction of some of the more valued species. But this remark applies particularly to Orchids. With few exceptions our importing nurserymen confine themselves chiefly to Orchids.

What are spoken of as "new plants" are now comparatively rarely shown. Hybrids and cross-breeds, even among Orchids, now take the most prominent part in our exhibitions, so far as novelties are concerned. The nurserymen doubtless know their own business best, and they tell us that "new plants" do not pay, and that the profit to be obtained from hardy shrubs or herbaceous plants is not sufficient to make it worth while to send out collectors.

Having some inkling of the treasures yet to come from Western China and other districts, we venture to think this reticence shows a want of enterprise. We have repeatedly called attention to the dried plants collected by Dr. Henry, the Abbé David, and others, some of which have been figured in various readily accessible botanical periodicals. But whatever be the outlook commercially, there is happily a band of cultivators who love plants for their own sakes, rather than for the money they may be worth, a band who are not swayed by fashion, but solely by the interest or beauty that a plant possesses. These gentlemen not unnaturally think that the time has come when the Royal Horticultural Society might take steps to promote the collection and distribution of interesting plants at present untouched by commercial collectors. There is no fear whatever that the sources are exhausted. The great continent of North America we may well leave to our cousins, they are not likely to overlook anything that is good; Russia will doubtless monopolise Central Asia and Manchuria; but there are, omitting purposely strictly tropical and semi-tropical districts, vast areas in China, Nepal, Tibet, Upper Burmah, Assam, parts of Asia Minor, Greece, Macedonia, and even in the Danubian provinces of Europe, from which supplies might certainly be obtained.

The Altai Mountains have been explored by Ledebour and other Russian botanists, but note what Mr. Elwes says in the *Journal of the Linnean Society* about the flora of this region, and its capability of supplying the requirements of the horticulturist, as observed in a recent visit. We take a few extracts from this paper almost at random:—

"To give an idea of the alpine flora of the South-eastern Altai, I may mention a few of the plants which were most conspicuous for their beauty near our camp on the Darkoti, or Tachety river, as Tchikatcheff spells it, thirty miles south-west of Kuch Agatch, at about 7000 feet. I have never, either in the Alps of Europe, in the Sikkim Himalaya, in Colorado, California, or anywhere else, seen such a perfect natural garden of beautiful alpine flowers as I saw here in the middle of July. Among the most conspicuous were the lovely Primula nivalis, Pall., which strongly resembles P. Parryi of Colorado; Dracocephalum grandiflorum, which grew in sheets of cœrulean blue; Polemonium pulchellum; Gentiana altaica; Pedicularis verticillata, P. foliosa, P. comosa; Allium sibiricum, or senescens, the most ornamental of its genus; Linum cœruleum; Iris Tigridia, Bunge; Pyrethrum pulchellum; a lovely blue Corydalis, growing in wet places, which Mr. Baker cannot name, and which may be new; a beautiful Aquilegia, named A. glandulosa at Kew, but much finer than that plant as we know it in our gardens; several pretty species of Astragalus, Lloydia serotina; and many well-known Arctic and high Alpine plants, such as Papaver alpinum, Draba ochroleuca, and Saxifraga oppositifolia, which were found as high up as 8500 feet, where the flora and scenery reminded one strongly of the high fjeld of Norway, and Dryas octopetala, which covered the curious dry gravelly ridges on the hill-sides in many places.

The only vegetables which we had during our stay at these altitudes were Rhubarb (R. Rhaponticum) and wild Onions; but the Tartars were also fond of the young stem of a species of Heracleum, which was too strong for my taste.

The Larch, Larix sibirica, ascended here to a little over 7000 feet. I saw young trees at this elevation about 1½ feet diameter and 7 feet high, which showed twenty-five years' growth; and a very remarkable stunted old Larch, 3 feet in diameter, and not more than 20 feet high, which must have been many hundreds of years old. Away from these there was no fuel but Willows and dry horse-dung, the common fuel of Mongolia and Tibet.

This valley is remarkable for its magnificent forests of Pine, Pinus sylvestris, which exceed anything I have ever seen before. In some places I counted as many as twenty or thirty trees to the acre, of an average girth near the ground of from 6 to 10 feet, and carrying their girth higher up than I have ever previously seen, so that at a height of 80 or 100 feet the tree would still be over a foot in diameter. The Russians, however, who, as described by a well-known German forester, are "everywhere and at all times true wasters and destroyers of forests," are making rapid inroads upon this magnificent timber, which is felled and floated down the Bija and Obb for supplying the towns and villages in the Steppe country northwards. Fire also is rapidly wasting many of the hill-sides, and when the Pine has been burnt off, its place is usually taken by Poplar and Birch."

At the meeting to which we have referred, there was an interesting discussion by Messrs. Elwes, Lynch, Dewar, Burbidge, G. Paul, Selfe Leonard, and others. The greatest difficulty seemed to be to obtain a zealous collector, competent to do the work thoroughly, and who would not flood us with rubbish—one who would work more from the love of travel and of plants than from monetary considerations only.

As to finances, the feeling of the meeting was so hopeful that no serious difficulty was apprehended on this score.

The result of the discussion at the meeting was the adoption of a resolution asking the sympathy and co-operation of the Council.

We cannot doubt that this will be given, and so we look forward with confidence to the despatch of a collector to one or other of the regions named either at once or early in the next year.

The Restio Family.

This is a group of Sedge-like perennial plants, with tall, dry, Rush-like stems, almost destitute of true leaves, and with flowers in spikelets, sometimes few in number, at other times very abundant. They are, like the Cape Heaths, almost exclusively confined to the extreme point of south-west Africa, and about an equal number is found in the corresponding part of Australia. Nevertheless, there is no species common to both countries, and there is plenty of matter for speculation as to how it has come about that these two regions, and practically none other, should be tenanted by these plants. Latterly, indeed, one species has been found in Natal, and one in the mountains of British East Africa, so that we look for further developments as the flora of these regions becomes better known. One outlier, and a very singular one, is a species which was discovered in Cochin-China by M. Godefroy Lebeuf; and another exists in Chile. With these exceptions

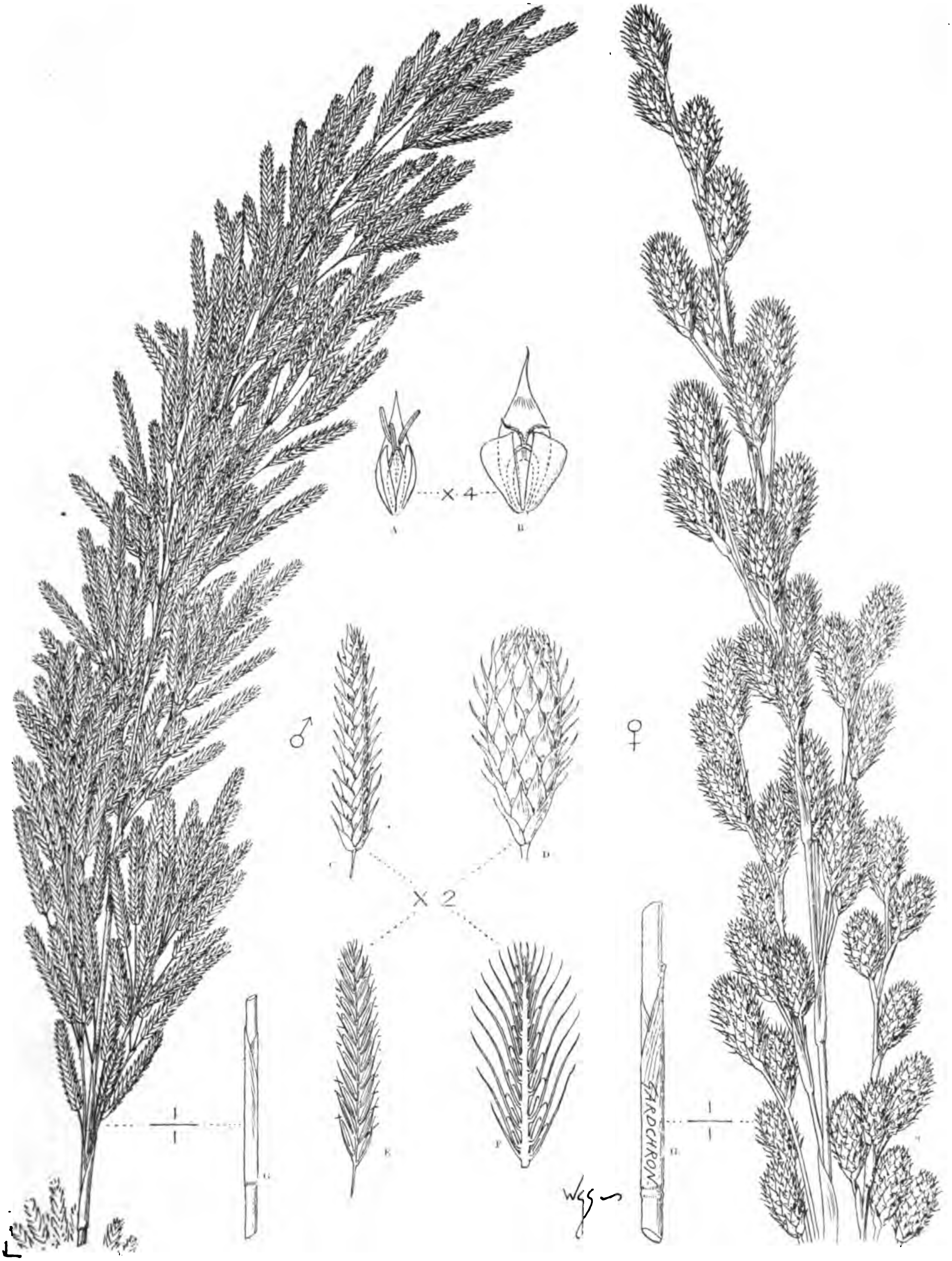


FIG. 92.—THAMNOCHORTUS SPICIGERUS: COLOUR OF THE FLOWERS CHESTNUT-BROWN. (SEE P. 250.)

A, Male flower from within; B, Female flower from within; C, Male spikelet; D, Female spikelet; E and F, Vertical sections through the spikelets; G, Sheaths and stem.

the geographical distribution is limited as above stated.

Very few of them are in cultivation. Most of them are so uninviting that even our botanic gardens contain few of the species. Till lately, indeed, we knew of but one—the plant named erroneously Willdenovia teres, but which is more correctly called Restio subverticillatus. We have known the male plant of this for many years in the botanic gardens of Oxford, Edinburgh, and Kew. Its graceful habit and pendent plumes of fine needle-like foliage render it, unlike most of its fellows, very ornamental. Whilst most of these plants are unattractive, there are some that are more ornamental even than the species just named; such are Leptocarpus paniculatus, the very numerous male spikelets of which are arranged in elegant panicles; Restio giganteus, and various species of Thamnochortus. Some of these have of late been introduced from the Cape for the purposes of house or church decoration, for which they are especially suitable. The flowers of some of these have been sown in the vain hope that they would grow—we say vain hope, for the sower has not always recognised the fact that what he has sown are the male flowers! These plants are, in fact, diœcious, the male flowers are on one plant, the female on another.

To make matters worse for the unfortunate botanist, it so happens that the male plants are sometimes very different in appearance from the female plants, and it is by no means unlikely that those responsible for the naming of these plants have occasionally mismatched them, and considered as mates plants that really do not stand in that relation to each other. And this leads us to remark that although the species are diœcious, and, as it appears, the pollen from the male must be wafted by the wind to the stigmas of the female, for there is nothing to attract insects to the flowers, yet, there is little or no evidence of hybridisation among them.

The species are sometimes very difficult of recognition, yet when once the observer gets a grasp of them he will find comparatively little evidence of variation in them, and none of hybridisation. This is, of course, a general statement, not of universal application, for some of the species show a considerable amount of variation.

It is curious to see how well these plants are adapted to the conditions in which they grow, and how every effort seems to be made to economise energy, and avoid superfluous growth, and consequent exhaustion. Their tufted or creeping habit is adapted to the sandy soil in which they grow, whilst the almost entire absence, or great reduction of the foliage, obviates excess of transpiration which in such a climate, and in such a dry soil, would speedily exhaust the plant. Male flowers are produced in abundance, but female flowers are, not always, but, usually, relatively scarce. Very often there is but one female flower to each spikelet, and it is rare for more than one seed to be perfected, so that the strain on the resources of the plant is reduced to a minimum; at the same time, the chances of the perpetuation of the species are correspondingly diminished.

The seed-vessel or fruit is capsular and dehiscent, or nut-like and indehiscent. In the former case, the solitary seed is hard and bony, but in the nut-like fruits it is the fruit that is hard and bony; whilst the covering of the seed is thin and membranous.

These facts indicate that the plants are exposed to unpropitious climatal conditions, and that their structure and conformation are correspondingly adapted to enable them to maintain themselves in the struggle.

Circumstances seem to point to the conclusion that the Restiaceæ are an old family, once more widely spread than they are now, when they seem to be doomed to extinction at, geologically speaking, a no very remote period.

Among the more ornamental species, some of which were shown at a recent meeting of the Royal Horticultural Society by Messrs. F. MILLER & Co., of Fulham Road, and which are amply worth introducing, and which could be cultivated in any ordinary greenhouse, are, in addition to those formerly named, Restio egregius, R. purpurascens, R. Rhodocoma, Dovea mucronata, a robust species growing in wet or damp places; two species of Lamprocaulos, one with shining golden-brown stems, the other with stems of a brilliant metallic-green colour; Thamnochortus spicigerus, T. argenteus, Cannomois cephalotes, and the species of Ceratocaryum. Most of these might be procured from the Cape with little difficulty; but if in the form of seed, there would be some uncertainty as to whether the seedlings might prove to be male or female, a circumstance that might lead to temporary disappointment. The two species, of which we give figures are Thamnochortus spicigerus (fig. 92, p. 249); and Thamnochortus insignis, Mast., a hitherto undescribed species of striking appearance, and a stature of 3 or 4 feet (see fig. 93, p. 251). The illustrations give a sufficient idea of their general appearance.

A NEW HALL FOR THE ROYAL HORTICULTURAL SOCIETY is becoming more and more urgent. The space the Drill Hall is capable of affording is by no means equal to the requirements of such an exhibition as that held there this week, when much confusion was inevitable. The number of separate committee meetings of various kinds more or less connected with the Society, held on the same day, is also very embarrassing.

ARABIS ALPINA.—The new double-flowered variety of this plant was exhibited at the Drill Hall show on Tuesday last.

ROSE FORTUNE'S YELLOW, is so finely exhibited at the Drill Hall each spring from the gardens of Lord WANTAGE, that we wonder a greater number of gardeners do not cultivate this variety successfully. The peculiar tint of the blooms, and their pleasing fragrance are always greatly admired. It is certainly worth planting in any garden that boasts a covered rosary, or even a greenhouse or conservatory where there are pillars to furnish.

A POISONOUS BOUQUET.—It is reported in the daily press that a lady in Omaha (Nebraska) was on the 13th ult. sent a handsome bouquet of flowers, together with a box of bon-bons. After smelling these flowers and partaking of some of the sweets, she became unconscious, and was reported to be dying. A subsequent examination showed that the presents had been impregnated with prussic acid. Seldom, we hope, have flowers been used for so diabolical a purpose; but the developments in this "poison by post" business are appalling.

THE DEVELOPMENT OF CYPRUS. — Colonel FYLER has published, through PERCY LUND, HUMPHRIES & Co., a little work dealing with the history and physical features of Cyprus. The island is so full of interest to the archæologist and naturalist that we scarcely think full justice has been done to it; the numerous illustrations with which the book is provided only whet our curiosity and make us wish for more. At present, we are told, there are no good hotels, else, Cyprus would be an excellent winter resort.

APPLE BEN DAVIS.—A writer in *American Gardening*, who draws attention to an instance in Nebraska where the public refused to buy this well-known American Apple, whilst other varieties were to be obtained, advises the orchardists to "Ship Ben to Europe." If "Ben" should arrive here in greater quantities than usual, we suppose the reason will be that the Americans have lost their conceit in this variety.

NEW YORK BOTANIC GARDENS.—Dr. D. T. MACDOUGAL has been appointed Director of the Laboratory of this establishment.

KEW.—In 1842 it was said of Kew that it was "a retired Hamlet," hamlet with a capital (see *Botanical Magazine*, t. 3922). It hardly answers to that designation now. At that time it was estimated that there were more Cedars in Britain than on Mount Lebanon itself, and more Cacteæ "than fall to the lot of any single empire or republic in all the Western World." At that time Woburn Abbey, Hendon, and Boyton House, Wilts, were the homes of great collections of these plants. LAMBERT presented his collection to Kew, just prior to his death. This took place at Kew, whither he had been removed to be near that Botanic Garden, in the prosperity of which he had always taken such a lively interest.

APPLES FROM THE ANTIPODES.—The officials of the Orient line of steamers advise us that the *Omrah* sailed from Adelaide on the 6th inst. with 28,000 cases of Apples; and was followed by the *India* from Adelaide on the 13th, with 17,000 cases of Apples.

FRITILLARY.—Mr. ELWES obligingly sends us numerous flowers of species of Fritillary, to show how little injured they were by 18° of frost during three successive nights. A flower of F. imperialis maxima measures 3 inches in depth, and is of a rich reddish-orange colour. The inodora variety differs from the others, not only in the absence of odour, but also in the more rounded perianth segments. It is of a very deep orange colour, strongly flushed with purple towards the base. Flowers of Lilium Thomsonianum, Erythronium, and Muscari accompanied the Fritillarias.

TO ENCOURAGE IN CHILDREN A LOVE FOR GARDENING. — In connection with the Hanley (Staffs.) Horticultural Fête, to be held July 5 & 6, there will be a children's section. The committee is now appealing for gifts of surplus plants or seeds for distribution amongst the children attending the elementary schools in the town. The plants will have to be grown by the exhibitors for a period of eight weeks previous to the exhibition. Such work has been practised with gratifying success in connection with the People's Palace in the East of London.

THE ROYAL GARDENERS' ORPHAN FUND.—We have much pleasure in making the announcement that Sir REGINALD HANSON, Bart., M.P., has consented to preside at the Annual Dinner of this charity, which will take place at the Hôtel Métropole, on Tuesday, July 18.

A CURIOUS PARASITE.—It may interest your botanical readers to know that Cynomorium coccineum, L. (Balanophoreæ), is now flowering in my garden; it is growing on the root of Atriplex portulacoides, L., and has sent up four heads. This extraordinary plant is a native of Sicily, Lampedusa, and Southern Spain; an excellent figure of it is to be seen in KERNER & OLIVER'S *Natural History of Plants*, vol. i., p. 197. *T. Hanbury, La Mortola, April* 15.

VANDALISM.—We had been gradually coming round to the belief that injuring flower-beds and the uprooting of shrubs, &c., had ceased to be apprehended. Of this idea we have been disabused. A short time since it was announced that Mr. CONINGSBY DISRAELI had been forced to close the gates of Hughenden because of the wanton damage

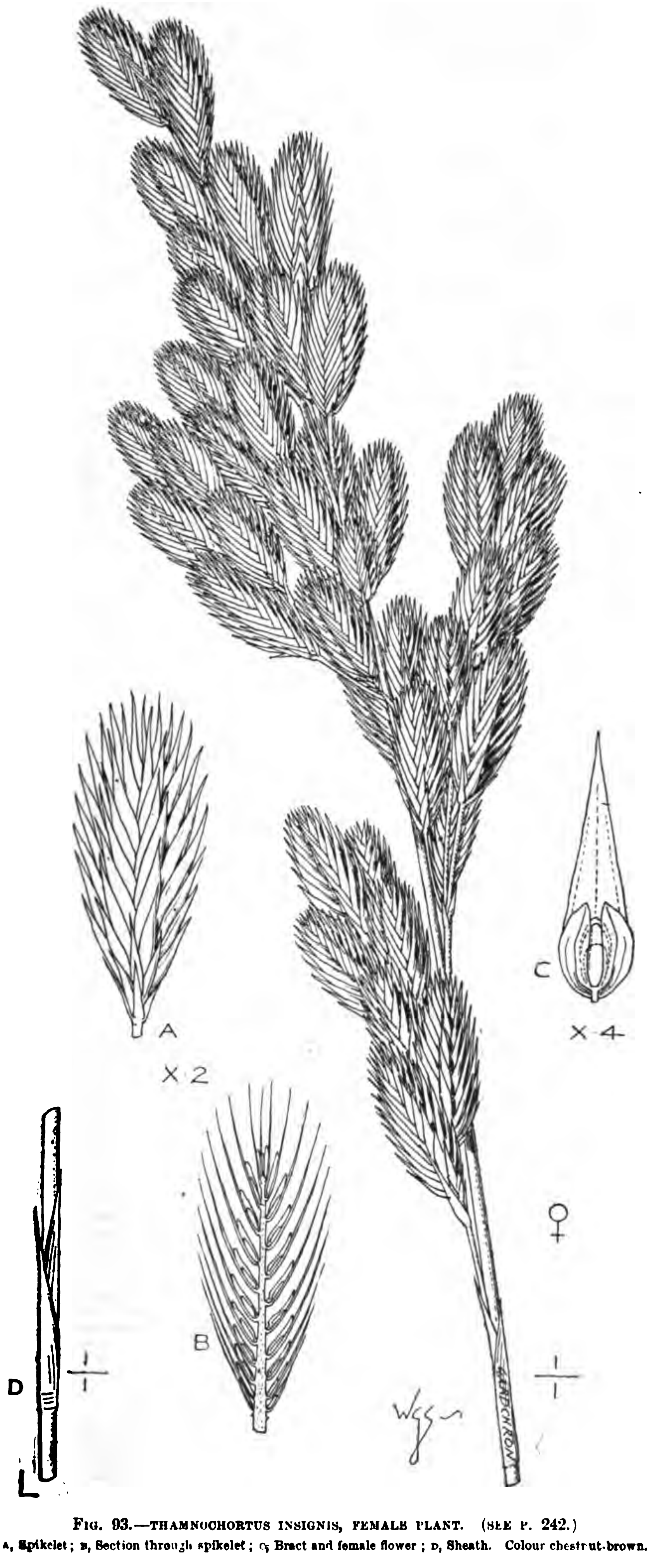


Fig. 93.—THAMNOCHORTUS INSIGNIS, FEMALE PLANT. (SEE P. 242.)

A, Spikelet; B, Section through spikelet; C, Bract and female flower; D, Sheath. Colour chestnut-brown.

done by visitors. To-day we are told that Lady Henry Somerset is, for the same reason, about to exclude the public from her beautiful park close to Reigate. Vandalism has been prominent during some years, many trees in the park suffering in one way or another. Very recently a large clump of Scots Firs planted near the gates has been most wilfully destroyed, saplings being pulled up by the roots; in one night there were thirty victims to this most wanton outrage.

A Floral Sword for Culloden.—A monster floral claymore was laid on Culloden Moor on April 16 by Mr. Theodore Napier, of Edinburgh. The handle of the "weapon" was composed of Myrtle, and the blade was formed of sphagnum-moss, with the words "What they fought for we will work for," picked out in bold red letters, formed of Gnaphaliums. A white satin ribbon is attached to the handle with the following inscription: "In honour of the brave men who fought on Drummore Moor in support of the rightful Sovereign of these realms—King James VIII.—April 16, 1746, from the Scottish members of the Legitimist Jacobite League of Great Britain and Ireland."

The "Hurst & Son" Musical Society.—The members of this Society, which was established at the beginning of the present year, in connection with the well-known firm of Messrs. Hurst & Son, gave their first concert at St. Botolph's Schools, Bishopsgate, on Thursday evening, 13th inst., before a crowded audience, when a capital programme of vocal and instrumental music was gone through. In the course of the evening, during an interval in which light refreshments were served, the President (Mr. N. Sherwood) briefly referred to the formation of the Society, its objects and aims, and expressed his pleasure in seeing such a large company. Judging from the success of this first public effort, it is safe to predict a prosperous future for the Society.

Chrysanthemums after Easter are scarcely likely to obtain the popular appreciation that is so liberally accorded to the flower during its natural season. Nevertheless, a correspondent has sent us yellow blooms, and a photograph of a plant of the variety Wilfred Marshall. It appears that the plant flowered early in January, and those now produced are a second crop—a by no means scanty one.

Flower and Fruit Farming.—Mr. Bear continues his essay on the production of flowers and fruits for market purposes in the *Journal of the Royal Agricultural Society*. Mr. Bear goes over much the same ground, but with fuller detail, than that which has been traversed by writers in our own pages, and in those of our contemporaries, but it is very serviceable to have the material collected in a form handy for reference. Perhaps Mr. Bear will reprint his essays in a separate form, which will be even more convenient.

Report of Observations on Injurious Insects.—The publication of a general index to the series of twenty-two annual reports prepared by Miss Ormerod, is announced. The index is prepared by Mr. Robert Newstead, and will be very convenient for purposes of reference.

Floral Devices.—An American gardener has represented in plants and flowers the battleship *Maine*. The model is one-sixth the actual size, and has a length of 53 feet, and a breadth of 10. More than 117,000 plants were used in its construction. We do not know whether to be more surprised at the labour this must have entailed or at the violation of good taste manifested—but then, tastes differ. The "battleship done in plants" is represented in the *Florists' Exchange*. Another device is thus described: Palmer & Son, of Buffalo, bedecked their window in a manner that turned out to be a good advertisement. A 5-feet diameter globe, skeleton framed of wire, covered with bronze Galax leaves, raised about a foot above the floor of their window, served as a foundation; effective in character. Directly on top of the globe a "buffalo" made of Violets, the details and proportions of which were carefully worked out, was posed. The outlines of the western continent were carefully planned and adjusted on a ground of Daffodils; pendent from the Pacific-ocean side of the globe, hung the now here traditional American pan, formed of Violets and ribbon bowed.

Dr. A. Zahlbruckner has been appointed to the provisional direction of the botanical section of the Natural History Museum in Vienna.

"The Gallovidian."—This is a new comer into the world of journalism, and as such deserves a welcome, more especially as its contents are bright and varied, and its "get-up" good. *The Gallovidian* is addressed principally to the dwellers in "Galfresia," a province that will not be found in the maps, but which has been devised to include the three southern counties of Dumfries, Wigton, and Kirkcudbright. The journal is markedly provincial, by which we mean patriotic. There is a good portrait of Sir Herbert Maxwell, together with a sketch of his career. The poets of the province are appropriately represented by the Rev. David R. Williamson, the writer of the articles in our columns entitled, "Notes from a Scottish Manse," with a view of the Manse of Kirkmaiden, and its well-stocked garden The poet and the man of science are at one in the feeling that—

"Glory everywhere
Is breathing from woodland flowers."

Aucubas.—To some of us it seems but the other day that Fortune introduced the male plant. In consequence of which our shrubs are now covered with berries, and in place of one variety we have them by scores. It may be suggested to raisers that they should endeavour to raise a variety which will throw its fruit well up above the foliage. At present it is often nearly concealed by the foliage; the Aucuba is one of the few plants that ripen their fruit in spring.

Our Benefactors.—We see in the current number of the *Journal of the National Horticultural Society of France*, a suggestion similar to what we have often advocated in these columns, viz., the desirability of commemorating in some form or another the names and achievements of our forefathers. We have just mentioned the Aucuba. Very few, we are convinced, know by whose agency this very valuable shrub was introduced, and the generation which witnessed the importations of Fortune is fast passing away; as has already that which was astonished by the profusion and interest of Douglas' discoveries. Addressing the members of the Paris Society, M. Ed. Roze advocates the commemoration of the name of Charles de l'Escluse (Clusius), of Arras, through whom the Potato was first introduced into France. To him also is due the introduction of the Laurel-Cherry, Prunus Lauro-cerasus.

Wakefield Paxton Society.—The weekly meeting of the members of this society was held at the Strafford Arms Hotel, on April 15, Alderman Milnes, J.P., presiding. The subject dealt with on this occasion was the "Daffodil: its History (briefly), Cultivation, Seed, and Seedlings," by Mr. W. H Garside, of Wakefield Park.

FOREIGN CORRESPONDENCE.

GARDENERS' WAGES IN GERMANY.

In your issue of April 1, there is an article on p. 194 referring to gardeners' wages in Germany. This article was written by an English youth whom I, on the recommendation of an old business friend in London, allowed to work in my establishment. After a very short experience, Mr. Cook thought himself already wise enough to write this letter; and as it is likely to throw discredit on the way workmen are paid here, I think it ought not to be left without a reply on my part. The wages which Mr. Cook states are perfectly correct. He only omits to mention that 10*s.* are the wages of lads of 16 to 18, and 15*s.* are the wages of grown men after they have been here a few years. Those who show special ability get up to 18*s.* or 20*s.*, and unusually gifted men much higher. One of my best foremen, a peasant's son, came here as a boy at 3*s.* or 4*s.* a week, and gets now a salary of £150 a year; two others get £135, and one £175. These wages are about the same, only somewhat better, than those paid in Belgium. In that country the boys of 14 years of age begin with 2*s.* a week. Here they begin with 4*s.* 6*d.* a week, and they get not one advance, as Mr. Cook says, but two yearly of 9*d.* a week. All the workmen are, of course, in the sick fund, and the firm pays half of their weekly contributions. There is, besides, a private fund at their disposal in special cases of emergency, and they receive besides a small Christmas present annually. The scale of remuneration is higher than it was ten years ago, but living has got dearer all round. It is lower than the wages of artisans (masons, joiners, locksmiths, &c.), who in this city get between 20*s.* and 28*s.*; but these have all gone through a term of apprenticeship, and have to provide their own tools, and are, especially the masons, dismissed when there is no work for them in winter. They live also in the town, whereas nine-tenths of my workmen live in the villages round Erfurt, where food, lodgings, taxes, &c., are considerably lower. I have a staff of about 200 people perfectly satisfied with their condition. Those who are not so, and leave, are easily replaced. The improvers, of whom Mr. Cook speaks, get indeed 45*s.* monthly to begin with. They generally stay in the Erfurt nurseries, like Mr. Cook himself, six to twelve months, in order to get an idea of the method of seed-culture, and then they mostly leave. They are only too glad to get situations here, where they have so much opportunity to learn and gain experience.

What Mr. Cook further says about England not being able to compete with Germany in seed-growing is such nonsense, that it needs no reply. England, on the contrary, is in many articles our chief competitor, and of a good many seeds we get our supplies from that country exclusively. *Ernst Benary, Erfurt.*

HOME CORRESPONDENCE.

Winter Salads (see p. 236).—I have read with interest Mr. Wythes' note concerning winter salads. Everyone knows with what ease Chicory and Dandelion may be grown and blanched, but an unbroken supply of tender Lettuces throughout the winter months is quite another matter, and it requires a great deal of skill to obtain even a fairly good supply. Much may be done by sowing seed at intervals throughout August and September, planting the seedlings well in the open, lifting when about to form hearts, and then transplanting them to cold frames or Peach-houses, doing the work when the leaves are dry. A good stock preserved in this way will afford salads for several weeks, the plants on all favoured occasions having abundant ventilation. A goodly number of the same-sized plants may be taken up, and placed in 8 and 10-inch pots, potting from four to seven plants in each, and close to the sides of the pots, with the lower leaves resting on the rims. In this way the leaves are not so liable to rot as when planted on the level. I have also tried them in heated pits, but no matter how careful I was with regard to forcing, airing, &c., I always failed in obtaining hearts of the Cos varieties. The early hearting Cabbage varieties, as All-the-year-round, and Hardy Hammersmith, are the best for this kind of over-wintering. I have had fairly good Lettuces very early in the season of the Black-seeded (Brown Cos) when planted close to the brickwork of a forcing-house on the south side. The heat from the house warming the earth and forcing the plants to grow, and from these plantings I was always able to cut Lettuces several weeks before those growing in the open border. It is, however, not practicable in this country to obtain good hearted Lettuces in the months of February and March with our present varieties. We want a Lettuce which may be forced without spoiling it, and which is not liable to go off with damp or lack of sunlight. Would not electric light, and heated large houses, help us? [Certainly the Americans are in advance of us in this particular. Ed.] *H. Markham.*

—— The August and September sowings would keep us going with "hearty" Cos and Cabbage Lettuces till the end of January, then the pinch would be felt. But as we English are not ravenous in regard to "green meat" in the dead of winter, and can manage to exist on ordinary meat-foods and seasonable vegetables not a few, for the period of February to April, should not the gardener be relieved of the useless attempt to grow Lettuces at that season? He has enough, as it is, piled upon his broad shoulders, but there is always someone proposing an increase to his burdens. Those who know only the needs of an ordinary establishment forty years ago, would be astonished at the increase of the gardener's duties, and at the same time the very noticeable reduction of garden labour at the present day. Even Lettuces could not be cultivated without expense in labour and fuel. Are they worth it?—that is the question. The gardeners of the south of France are willing to do all this for us, even as they now grow our early vegetables of all kinds, and the produce beats anything we can show at that season. I say, therefore, let them furnish the supply of Lettuce, for it is but a bagatelle; moreover, every increase of trade, in whatsoever direction, is a guaranty of peace between us and them. *Cui bono.*

Apple Barnack Beauty.—I have read in your issue of the 15th inst. of an Award of Merit being given to the above Apple by the Royal Horticultural Society. As I have grown large quantities of it for the last fifteen years, a few particulars respecting the variety may be of interest to many of your readers. The tree is very hardy and free from canker, growth upright, and great cropper. The fruit-spurs in young trees extend from the base for the whole length of the branches (excepting of course the one-year wood), and if grown on the Paradise stock the fruit is of high colour, and much larger than those from the Crab. When Apples are scarce in April and May, this variety is not to be despised as a dessert fruit, for it is very handsome, and does not shrink if well harvested. This excellent Apple was brought into commerce twenty years ago by Messrs. W. & J. Brown, nurserymen, at Stamford and Peterborough, who grow and sell a large number of the trees every year. The parent tree, a seedling, is still in a healthy condition in the garden of Mr. Charles, who resides in the village of Barnack, four miles from Stamford. Apparently it is from fifty to sixty years old. A few days ago Mr. Charles showed me the tree, and amongst other interesting information he told me that when late Apples were scarce one season, the Marquis of Exeter's late head gardener, Mr. Gilbert, bought 17 stone, the produce of this tree, for which he paid 7*s.* 6*d.* per stone. *A. Hagger, 3, Scotgate, Stamford, Lincolnshire.*

Primula sinensis causing irritation.—As your correspondent, E. Bonavia, M.D., seems to doubt the case mentioned by me in the *Gardeners' Chronicle* for April 1, I can assure him without a doubt that P. sinensis was responsible for the case in question. Four years ago my friend grew P. obconica, and on the leaves coming in contact with his hands he felt a sharp irritation, and a rash came out which went up his arms beyond the wrist. This kept on for several days; he tried ointments and other things, but to no avail. So last year he discarded P. obconica, and tried P. sinensis, and yet this species affected him in the same way; or, as he puts it, as badly as ever, if not worse, the irritation and rash extending to the elbow. Every time he touched the plant, the same thing occurred; and as further proof, one day a leaf accidentally touched his neck, and the irritation and rash appeared there. He also says that neither weather nor winds, no matter how severe they may be, ever affect his skin in any way. In *Amateur Gardening* for November 20, 1897, p. 327, you will find a writer there gives his experience of the two species of Primulas. He says that he has found several times during the last ten years that P. sinensis does cause irritation on the back of the hands and fingers when the plants are handled, and that the irritation is very great for two or three days; but, he adds, it is alleviated by using the following lotion, and then gives the recipe for same. Knowing my friend personally for many years as an amateur gardener, I have every confidence that what he states is a fact. The recipe I mention is made up of the following: R. Pulv. zinci oxidi ℨ ix., acid carbolic, gr. xxv., glycerine ℨ iv., aquam rosæ q. s. To be used frequently. This is a palliative. *J. R. Wilson, The Gardens, Haselbeck Hall, Northants.*

—— Mr. J. Mayne, in *Gardeners' Chronicle*, at p. 236, adds one more to the diverse opinions expressed from time to time of the effects produced by the leaves of Primula obconica on the skin. In my own case I dare not remove a leaf without wearing gloves, but all of the men in the gardens here are able to handle the plant without ill-effects following. My remedy for the irritation is to dip the hand or arm in water as hot as it is possible to bear, withdrawing it and repeating the dipping till the irritation is allayed. It would be a pity for the lack of a remedy to see this pretty plant discarded by the gardener. *T. Low, Hutton Hall Gardens, York.*

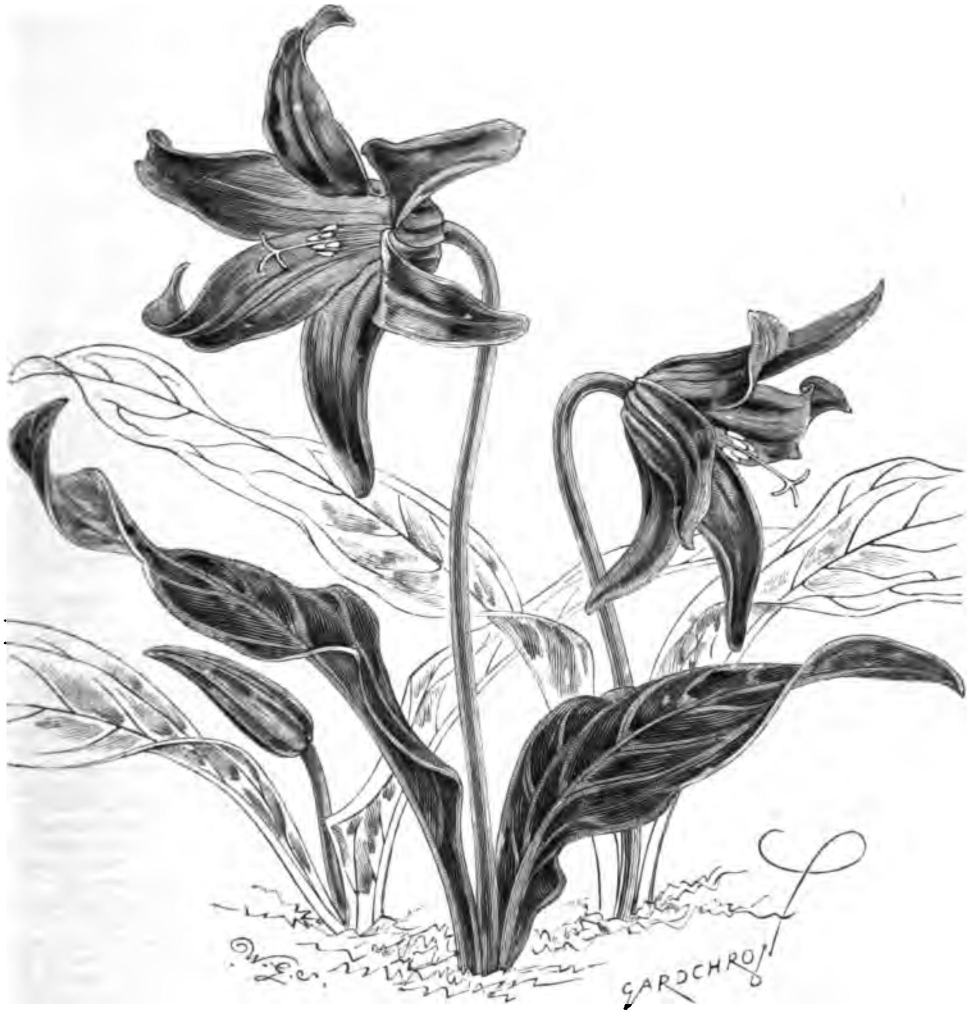


Fig. 94.—Erythronium Johnsoni: colour of flowers lilac rose.
(Awarded a First-Class Certificate at the Royal Horticultural Society's Meeting on Tuesday last.

THE NEWER FRENCH CLIMBING BEANS.—Under this heading may be classed some half dozen varieties that are earlier than the ordinary Runners, but which produce equally large crops of good pods. Such varieties are extremely valuable because they require such little space in the garden, compared with that needed by Runners. The first of this new type has been fully tested in many gardens, and I do not hesitate to say it will be largely grown in future, and whether known as Veitch's Climbing or Sutton's Tender-and-True, it is an excellent vegetable, and superior in dry seasons to the Runner. Since the advent of Tender-and-True, Messrs. Sutton have obtained some distinct varieties. Though some of these are stronger in their climbing habit than is Tender-and-True, the pods do not resemble in the least those of the Runner Bean, and they crop enormously. These climbing French Beans do well in most soils, their chief requirement being plenty of moisture. So good were these last season (which was anything but a propitious one), that I think it useless to continue to cultivate the older Runners. The pods of the former are most shapely, and when gathered in a young state are of the finest quality, and are more readily prepared for use. Now, as to the little space they require. Most of the varieties succeed if given half the space between the rows usually afforded the Runner Beans. I have grown them at 4 feet apart, but if room can be allowed 6 feet is better. We stopped the plants when they had reached a height of 4 feet, and I have never seen such excellent results. The plants set pods quite close to the soil, and continued to do so from new breaks higher up the bine till cut down by frost. Many growers dislike dwarf Beans in the late summer months, on account of the pods getting old and stringy so quickly, but the newer type yield more fleshy pods, and combine the vigour of the Runner with the shapely pod of the French type. Such dwarfness with equal weight of produce is a step in the right direction. It was not always an easy matter to obtain an ample supply of Bean-rods, but this type of Bean can be grown with ordinary Pea-sticks from 4 to 6 feet in height; or if desired, they may be stopped at even less than the height given, if such kinds as Tender-and-True, Sutton's Earliest-of-All, or Epicure, be grown. The first-named variety, and the variety that found so many admirers at the Royal Horticultural Society's Gardens at Chiswick a few years ago, is still one of the best, and has been found to be synonymous with Veitch's Climbing, which was sent to the Society's Gardens by Mr. H. W. Ward. Earliest-of-All is a distinct variety of later introduction, and bears remarkably early. It belongs to the white-seeded section, and I have found the white-seeded varieties of the Runner to be rather earlier than the others. It has a very fleshy pod, and is almost free from the stringyness so characteristic of the Runner Bean. Earliest-of-All crops equal to any of the varieties, and if gathered in a young state and cooked whole it is delicious. Epicure is late, but it is of great value for summer cropping; it bears in large clusters light green pods of splendid table quality, far superior, in my opinion, to the best Runner. Excelsior is a larger grower, and the strongest of the new Runner varieties, and specially good for late summer and early autumn supplies. This variety will grow 10 feet in height, but we stop at 6 feet, and grown thus it will fruit into November in a mild season. *G. Wythes.*

A BLACKBIRD'S NEST IN A PONY'S BOOT.—The nests of birds, as we know, are often constructed of strange materials and in strange places, and one that I found this morning shows it: on going into the shed in which the mowing machines and pony's boots are kept it was discovered that a blackbird had built her nest in one of the latter, which hang on the wall. Having to use the boots, I put the nest in a small box and hung it on the same peg, and the blackbird has laid another egg in it, and is sitting quite contentedly to-night. *A. E. Matthews, Court Colman, Bridgend.*

HARDY FLOWERING SHRUBS.—At Sion House, and also at Gunnersbury House, the Chinese Yulan, or Water Lily-tree (Magnolia conspicua), is just now very effective, having, owing to the lateness of the season, escaped spring frosts and the recent rude winds. At Kew just at this moment M. stellata and other kinds are beautiful; but the one hardy shrub that now lights up the Royal gardens like gleams of "sunshine in a shady place," is the Chinese Forsythia suspensa, for which we have to thank the Royal Horticultural Society, and the late Robert Fortune. It is one of the shrubs that is good in all ways, as a bush, as a group, on a wall, or on trees or rocks, and should more often find a place on Ivied walls than is at present the rule. Even as a pot-plant for the cool greenhouse, it is most useful, grown as Wistarias are at Kew, and the Laburnum as at Highbury. Daphne Mezereum, both purple and white, and single and double-flowered Peaches, are also now flowering at Kew. The Amaryllis, or Hippeastrums, and Japan Tree Pæonies are now very showy at Kew in the No. 4 greenhouse, where there are also one or two very large and well-grown groups of Cineraria cruenta varieties, as free in habit and as graceful as are the best of the autumnal Michaelmas Daisies or Asters. In the conservatory at Highbury, Birmingham, the other day I saw a very well-grown and handsome group of double German Wallflowers in pots, and varieties of Schizanthus pinnatus were also very effective there. Coming by rail through Berkshire and Herts the other day, the Plum-orchards were white with snowy-petalled flowers; and the same is true of the orchards and market-gardens that lie between the church spire at Turnham Green and the classical water-tower of Brentford. Now that our little "Black Thorn Winter" is over, I hope we may have a flowery and a fertile spring. *F. W. Burbidge.*

SOCIETIES.

ROYAL HORTICULTURAL.

April 18.—Those who frequent the meetings of the Royal Horticultural Society at the Drill Hall, Westminster, have come to regard as a red-letter day the particular date each year when the National Auricula Society hold their exhibition in conjunction with the ordinary fortnightly meeting. But even after allowing for this, the meeting on Tuesday last was a record one. Never do we remember to have seen the Hall so inconveniently crowded with exhibits and visitors. There was quite insufficient space to stage the exhibits properly (though a word of praise is due to Mr. Wright for having done this to the best degree possible), and the pathways were so thronged that visitors themselves had great difficult in inspecting the plants. As to the representatives of the

Press, their efforts were made under difficulties that they would regret to see become permanent. But there was noticeable that enthusiasm that seems peculiar to large gatherings, and notwithstanding the inconvenience, and the fact that the afternoon lecture had to be postponed on account of the crush, the day was, no doubt, a very enjoyable and interesting one to most of the exhibitors. The Auricula Exhibition, which was better than had been expected, is fully reported below.

The Orchid Committee recommended two First class Certificates and three Awards of Merit, three of the distinguished plants being Odontoglossums, the others a Masdevallia and a Dendrobium. Two First-class Certificates were awarded by the Floral Committee to a beautiful hybrid Anthurium from Sir Trevor Lawrence, and to a pure white variety of Anemone blanda from the Duke of Rutland's garden. The only Award of Merit made was to Erythronium Johnsoni, a species figured in these columns so long ago as 1896, from Messrs. Wallace & Co. Among the new plants before this committee also may be mentioned the double-flowered variety of Arabis alpina.

The Narcissus Committee had considerable work to discharge, the exhibits of Daffodils being numerous and extensive. The hybrids from the garden of the Rev. Geo. Engleheart were much admired.

The awards recommended by the Fruit Committee were to Pea Carter's Early Morn, Onion Ne Plus Ultra, and Tomato Winter Beauty.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. John Fraser, Chas. T. Druery, Owen Thomas, H. B. May, R. Dean, J. H. Fitt, Geo. Nicholson, W. Howe, John Jennings, R. B. Lowe, Thomas Peed, R. Wilson Ker, Geo. Paul, W. Bain, J. D. Pawle, C. R. Fielder, Herbert J. Cutbush, J. W. Barr, E. T. Cook, E. Beckett, T. W. Sanders, D. B. Crane, E. H. Jenkins, C. Blick, H. Selfe Leonard, H. J. Jones, Harry Turner, and Ed. Mawley.

CINERARIAS.

Messrs. J. Carter & Co., High Holborn, London, showed Cinerarias in a group upon the floor. As a collection of the ordinary florists' type, it represented a strain of very considerable merit, producing large and brilliantly-coloured flowers of great variety of tint. Another group from the same firm was composed of double-flowered Cinerarias, and the plants, in this case, showed excellent cultivation, being of good habit, and bearing a goodly number, each of fine flowers in distinct colours (Silver Banksian Medal).

Messrs. Sutton & Sons, Reading, showed a group of plants of the hybrid Cinerarias, now named "Stellata" strain, or "Star Cineraria." This collection represented considerable advance since last season, when the firm made a similar display. They have obtained a more even type. Individually the little flowers are perfect, and in their way the plants have as good habit as those of the florist's varieties. A greater variety in colour is evident; indeed, in this respect they appear to be equal to their more showy relatives. From the florist's point of view, however, they are and must remain "weeds," although the decorator will not fail to appreciate such weeds. The flowers are exceedingly numerous, uncrowded, and perfectly erect, and when cut they therefore display themselves to the best possible advantage. It is probably more due to cultivation than anything else, that the plants shown were only from 14 inches to 2½ feet in height. If the same plants had been given more root room, and fed liberally, they would probably have trebled their stature, but the exhibit showed that it is quite possible to obtain them as dwarf as needful (Silver Flora Medal).

ROSES.

Messrs. Paul & Son, The Old Nurseries, Cheshunt, showed some Roses in pots, including Perle d'Or, a pretty little Polyantha variety; Muriel Grahame, a new Tea, that has already won much favour; also Souvenir de S. A. Prince, a white Tea; Crimson Rambler, and several garden varieties of Rosa.

A variegated form of R. Wichuriana was shown with long growths; the Dawson Rose, a climbing Polyantha variety, with rose-coloured semi-single flowers; various other well-known sorts, and standards of same. A few hardy plants in flower were also from Messrs. Paul & Son.

Mr. W. Rumsey, Joynings Nurseries, Waltham Cross, Herts, made a commendable exhibit of Roses in pots, and these were faced by something like fourteen dozen cut blooms of popular varieties. Among the pot-plants were Magna Charta, Beauty of Waltham, Mrs. Rumsey, Miss Hassard, Madame Hoste, Crimson Rambler, and Heinrich Schultheiss.

From Lord Wantage's garden at Wantage, Mr. W. Fyfe again made a glorious display of blooms of the Rose Fortune's Yellow. The stems are rather weak, and were wired, there being from eight to a dozen blooms arranged in each glass. The peculiar tint of this Rose invariably attracts great appreciation.

A very prettily tinted Tea Rose, named Sunrise, was shown by Mr. G. W. Piper, Uckfield, who had a nice lot of flowers and buds. The colour reminds one of Empress of Russia, but is more intense.

HIPPEASTRUMS.

Some Hippeastrums from Mr. David Kemp, gr. to Wilberforce Bryant, Esq., Stoke Park Gardens, Slough, showed what extraordinary vigour is sometimes attained by seedlings. The plants were from seeds sown in 1893 and the following year, and they have never been plunged or given bottom-heat. These Chelsea hybrids were indeed monsters. In one 10-in. pot were bulbs that bore fifty flowers. The spikes commonly bore five or six large blooms, but occasionally there were seven and eight to an umbel. Some of the spikes were about 3 feet in length, and of wonderful strength (Silver Banksian Medal).

TULIPS.

A large number of Tulips in pots were shown by Messrs. W. Paul & Son, nurserymen, Waltham Cross. There were three to four bulbs in each pot, and the display that they made was good of its kind, and indicated what uses pot Tulips could be put to when grouped in masses of one colour, and contrasted with other plants as dwarf or dwarfer than themselves. Of varieties with which amateurs are unfamiliar, may be mentioned Van Berghem, a fine rosy-crimson bloom; Leonardo da Vinci, an orange red; La Matelas, a fancy pink, with white margin to the petals; Spandouck, a rose bizarre; La Matador, a double-crimson self; Grenadier, a red bizarre; Colour Cardinal, a self of rich crimson; Molière, an unbroken flower; Princess Helène, a pure white self, single, cerise; Gris de Lin, a bizarre; Thos. Moore, a striking orange-scarlet self; Epaminondas, deep crimson, single; Golden Lion, a yellow self; and Rosa Mundi, golden, a new bizarre. The display of Tulips was separated from other exhibits by a row of Cytisus, in variety, and forced, double-pink flowered Thorns.

MISCELLANEOUS PLANTS.

Mr. H. B. May's group from Dyson's Road Nursery, Upper Edmonton, was a display of spring-flowering plants, intermixed with Ferns. Crimson Rambler Roses in 6 and 7-inch pots were full of flower, and Hydrangea Hortensia var. Thomas Hogg, Spiræa astilboides floribunda, and a new mauve or purple-flowered Clematis named Nellie Moser, were good. Vitis heterophylla, a cold greenhouse species, with delicately ornamental foliage, was conspicuous amongst the foliage plants and choice Ferns employed to relieve this very beautiful exhibit (Silver-gilt Flora Medal).

Camellias grown in the open air near Windsor were shown in the shape of cut blooms by Sir Francis T. Barry, Bart., M.P., St. Leonard's Hill, Windsor (gr., Mr. R. Brown). There were upwards of 100 fine blooms, in several varieties (Bronze Banksian Medal).

A group of miscellaneous plants was contributed by Messrs. B. S. Williams & Son, Upper Holloway, London, N. In this exhibit there were remarked many pretty Ericas, Boronias; and of Cliveias, Van Houttei and Ambrose Verschaffelt; Erica perspicua erecta, and E. p. nana, are very pretty distinct-flowered Heaths. Acacia Drummondi and Acers, in several varieties, were attractive.

Messrs. W. Cutbush & Son, Highgate, London, N., demonstrated the decorative qualities of Acacia cordata, Ericas erecta and Cavendishi, the pure white Heath, E. candidissima, E. ventricosa, and the large, red-flowered E. hybrida; also Boronias heterophylla and megastigma. Some plants of the Otaheite Orange were exceptionally well fruited. Altogether, the group was an exhibition of fine culture applied to these free-flowering greenhouse plants, that have not merited the neglect to which they are now treated (Silver Banksian Medal).

Mr. John Russell, Richmond Nurseries, Surrey, showed a pretty group of the hardy Azaleas, and standard plants of Wistaria sinensis, forced Lilacs, &c.

Messrs. R. & G. Cuthbert, Southgate, Middlesex, showed a beautiful collection of Indian Azaleas, in nice dwarf plants, freely flowered, and many of them new. Roi de Hollande, Lima, Madame Chas. Van Elkhaute, Konigin Cleopatra, Superba, Oswald de Kerchove, and Memoire de Louis Houtte are all capital coloured varieties; and of pure white ones, such as Madame J. E. Planchon, Niobe, Deutsche Perle, and Raphael, were commendable.

Messrs. Wallace & Co., Kilnfield Gardens, Colchester, showed a number of varieties of Erythroniums and Fritillarias.

Messrs. John Laing & Sons, Forest Hill Nurseries, London, S.E., were awarded a Silver-Gilt Flora Medal for a magnificent group of miscellaneous plants. In this collection were splendid Boronias, Ericas, Azaleas, Anthuriums, the yellow-flowered Richardia Pentlandi, Acacia cordata, Codiæums, Cordylines, and choice Ferns. It was a tasteful arrangement of very choice plants.

Messrs. J. Peed & Sons, Roupell Park Nurseries, Norwood Road, S.E., staged a group of miscellaneous plants, in which were tuberous-rooted Begonias just commencing to flower, Caladiums, well-fruited Orange trees, Lilium candidum, and other species of decorative plants.

Myosotidium nobile, the gigantic Forget-me-not-like Boraginaceous plant from the Chatham Islands, and figured in the *Botanical Magazine*, 5137, and in the *Gardeners' Chronicle*, May 1, 1897, p. 293, was shown by Mrs. E. Powys Rogers, Burncoose, Perranwell, R.S.O., Cornwall. The flowers are white, with blue centres, about half an inch across, produced in large racemes.

Lotus Bertholeti in flower came from Major Thurlow's garden at Buckham Hill House, Uckfield (gr., Mr. Davis).

A much variegated variety of the hardy Deutzia, D. crenata, came from Mr. E. Beckett, gr. to Lord Aldenham, Elstree.

Mr. W. Camm showed, from the gardens of the Duchess of Cleveland, Battle Abbey, a pale-coloured variety of Bougainvillea speciosa.

H. J. Elwes, Esq., Colesbourne, contributed some pretty varieties of the Fritillary, Crown Imperial, including the maxima variety Muscari, &c.

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea, showed plants of the new double-flowered Arabis alpina, a variety that will be much prized. Also blooms of a tinted variety of Magnolia stellata named rosea; and a variety of Philadelphus Lemoinei, known as Manteau de Hervæne.

Messrs. F. Sander & Co., St. Albans, exhibited a plant in flower of Dianthera illustris, an Acanthaceous plant, superficially resembling a Jacobinia, the bracts of the plant shown being dull red, and the flowers purple.

AWARDS.

Anthurium × *Perfection.*—Another of the beautiful hybrid Anthuriums raised by Sir Trevor Lawrence, Bart., Burford, Dorking (gr., Mr. Bain). Perfection is of the type of A. Andreanum, and has a coral-scarlet spathe, about 7 inches by 5 inches. The white spadix is about 4 inches long (First-class Certificate). Sir T. Lawrence exhibited other very handsome hybrids.

Anemone blanda var. cypriana.—A pure white variety of the type, the petals bearing blue only on the outer side (First-class Certificate), from Mr. W. H. Divers, gr. to the Duke of Rutland, Belvoir Castle, Grantham.

Erythronium Johnsoni.—A lilac-rose-coloured species, with yellow ring at the interior base, from the Coast Ranges of Southern Oregon. The flowers, which are borne upon scapes occasionally 10 inches in length, are about 2 inches across, and the segments widely expanded. The plant has two leaves, 5 to 6 inches long by 1½ inch wide, and much mottled. A fine illustration of this beautiful Erythronium was given in these columns, May 2, 1896, p. 549, (which is here reproduced), together with the original description published by Dr. Bolander in *Erythea*, vol. iii., August, 1895, p. 127.

Narcissus Committee.

Present: Messrs. J. T. Bennett-Poë, Chairman; C. R. Scrase-Dickins, Secretary; A. Kingsmill, J. Walker, W. Goldring, J. Pope, J. H. de Graaff, P. R. Barr, Hon. John Boscawen, R. Sydenham, J. Titheradge, Rev. G. H. Engleheart, Rev. S. E. Bourne, T. Marsh, and Miss Willmott.

Both Daffodils and those specially interested in their cultivation, were present on this occasion in unusual force, the flowers, after long hanging fire, have come in with a rush. Several large banks of cut bloom formed a feature of the day's exhibition, and a long session was provided for the committee by the number of new varieties submitted.

A large bicolor trumpet from Messrs. Barr, named Duke of Bedford, received an Award of Merit; though lacking the refined colour and form of Weardale Perfection, it is a strikingly handsome flower. The same award was given to Sunset, from Messrs. Barr, an apparent hybrid between Tazetta and Jonquilla; it has a clustered scape, orange cup, and yellow divisions. Messrs. J. Pope & Sons, King's Norton, gained an Award of Merit for Pope's King, a large and solid Ajax in the way of Golden Spur.

The Rev. G. H. Engleheart received a First-class Certificate for Edmonds' White, a large flower, which must be classed with N. Leedsii. It has a white perianth, and widely-expanded and fringed cup of pale lemon, very beautiful. The following flowers from the same exhibitor obtained Awards of Merit:—Flambeau, an incomparabilis of good size, with yellow segments, and brilliant orange crown, the colour finer than in Gloria Mundi. The plant is said to be exceptionally vigorous and free. Brigadier may be described as a bicolor Sir Watkin, a flower of the largest size, with broad white divisions, and large crown of deep yellow. Cassandra, one of Mr. Engleheart's well-known strain of seedling Poeticus, the flower noticeable for its amplitude of broad white petal and deep crimson eye. Strongbow, a Nelsoni-like form, with broad divisions, very stout, and well imbricated, the crown expanded, deep yellow tint, and of great substance.

A large group of Mr. Engleheart's seedlings seemed to draw a constant throng of visitors throughout the day. Besides the varieties mentioned, it contained many selected forms, representative of the advance he has made in colour, form, and size, beyond the older Narcissi. The depth and vividness of the red in many seedlings, was a remarkable feature; the stand also contained many beautiful pale flowers of the Leedsii class, and several large gatherings of the new Poeticus.

Messrs. Barr had, as usual, a grand collection of all Narcissi in flower at the date, the trumpets Weardale Perfection, Duke of Bedford, and Madame de Graaff, were especially fine. (Silver-gilt Flora).

Messrs. Pearson, of Chilwell, showed a large group, noteworthy not only for the splendid size and finish of the flowers, but also for the taste and skill displayed in their staging, a point in which they always excel.

Messrs. Bath, of Wisbech, exhibited a large bank of Narcissi in almost countless variety, and beautifully fresh.

J. T. Bennett-Poë, Esq., won Messrs. Barr's Silver Cup with a choice collection in exquisite condition.

J. W. Jones, Esq., Invermore, Woking, had a fine display in considerable variety. He was 2nd in the Cup Competition.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. S. Courtauld, J. Colman, E. Ashworth, W. H. White, H. T. Pitt, E. Hill, J. Jaques, F. Sander, T. W. Bond, W. H. Young, A. Outram, H. Little, J. Gabriel, H. J. Chapman, H. Ballantine, De B. Crawshay, J. G. Fowler, T. B. Haywood, and Jas. O'Brien (Hon. Sec.).

The hall was so full of cut flowers and plants, among which the Orchids formed an important feature, that most of the exhibitors who entered items which they desired to go before the committee had to be placed on the committee table.

Odontoglossums formed the main feature. Fashion for some years past has constituted rare varieties and richly-spotted forms amongst the most valuable of Orchids.

Baron Sir H. Schröder, The Dell, Staines (gr., Mr. H. Ballantine), sent fine examples of his grand collection in the still unsurpassed violet-spotted Odontoglossum Pescatorei Schröderianum, and O. P. Veitchianum; the magnificent O. × Wilckeanum Queen Empress; the remarkable brownish-purple blotched O. crispum Princess Christian, distinct both in plant and flower; a noble form of O. triumphans, &c.; also a fine inflorescence of the singular blue-tinted Cattleya Lawrenceana Vinckei (Silver Flora Medal).

Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), also had in his pretty group some very fine Odontoglossums, notably a grand form of O. × Ruckerianum, with a five-branched spike; O. × Andersonianum, Dorman's variety, a splendid cream-white flower, heavily blotched with red-brown; an excellently-cultivated plant of the rare O. coronarium miniatum, with two fine spikes; a fine form of O. gloriosum; remarkable O. crispum, O. Edwardi, two fine spikes; and other fine varieties; and of other species the rare scarlet Epidendrum Schomburgkianum, with two spikes; three plants of the elegant white and violet E. Endresii, additionally remarkable in that they were the same plants bearing the same flowers shown in February; Masdevallia × Shuttryana, Chamberlain's variety; varieties of M. Harryana; Cymbidium Devonianum, with five spikes; Maxillaria præstans, with nine flowers; Lælio-Cattleya × Highburyensis, Cypripedium × Fowlerianum, Cochlioda sanguinea, Dendrobium Falconeri giganteum, Miltonia cuneata, with five spikes (Cultural Commendation), Calanthe veratrifolia, with seven spikes, &c. (Silver Flora Medal).

A. Warburton, Esq., Vine House, Haslingden, showed another triumph in blotched Odontoglossum crispum Luciani, one of the handsomest and most richly purple-blotched forms extant, and which previously received a First-class Certificate, and was illustrated in the *Gardeners' Chronicle*, April 24, 1897, p. 268. The excellent culture accorded the plant by Mr. Warburton's Orchid-grower has still added to its beauties. There were also shown Dendrobium × Clio, Vine-house variety; Cattleya Schröderæ and C. Mendeli.

Elijah Ashworth, Esq., Harefield Hall, Wilmslow (gr., Mr. Holbrook), showed his splendid purplish-rose blotched Odontoglossum crispum Ashworthianum (see list of Awards), the fine Cypripedium Lawrenceanum Hyeanum superbum, and C. callosum Sanderæ Ashworthianum.

Dr B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), again showed the noble Odontoglossum triumphans Lionel Crawshay, previously certificated and illustrated in the *Gardeners' Chronicle*, April 20, 1895, p. 489; the fine yellow flowers are the largest and have the broadest segments of any form of O. triumphans, the species not having another comparable with this one. The plant bore two fine spikes from one bulb, the one with ten and the other seven flowers, of the typical form. The exhibitor showed likewise O. triumphans princeps, fine in shape, and richly coloured.

Messrs. J. Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, staged the finest group, and were awarded a Silver-gilt Flora Medal. The centre consisted of a number of varieties of Cattleya Schroderæ, with flowers varying from whitish to shades of peach and rose colour, the orange tint in the throat varying considerably. With them were several fine forms of Cattleya Mendeli, C Schilleriana, the bright scarlet Epiphronitis × Veitchi, the white and rose Chysis × Chelsoni, Cymbidium × eburneo-Lowianum, Dendrobium × Alcippe, the new Cowslip-yellow D. × Imogen (signatum ♂, crassinum-leucopterum ♀), D. × Cheltenhamense, D. infundibulum, D. subclausum, and other species and hybrids; Lælia × Latona, L. cinnabarina, Lælio-Cattleya × Pallas, the pretty white Bifrenaria Harrisoniæ candida, a number of good Odontoglossums, Cypripediums, Cattleyas, &c.

Major Joicey, Sunningdale Park, Sunningdale (gr., Mr. F. J. Thorne), was awarded a Silver Banksian Medal for a finely-cultivated group of plants of Epidendrum bicornutum, which Mr. Thorne has succeeded in making thrive for several years past. Some of the plants showed four fine heads of flowers. With them came a plant of Angræcum sesquipedale with nine flowers, one of the spikes bearing four blooms; a vigorous example of the white-flowered Dendrobium Johnsoniæ, also its congener, D. atroviolaceum, was cultivated admirably.

J. Bradshaw, Esq., The Grange, Southgate (gr., Mr. Whiffen), staged a group, the back of which consisted of specimens of Cymbidium Lowianum, and the front of C. × eburneo-Lowianum; and beside these were noted good forms of Odontoglossum crispum, O. Pescatorei, O. × Andersonianum, O. triumphans, O. × Andrianæ, Lælia × Latona, Lycaste Skinneri, Cattleyas, &c. (Silver Flora Medal).

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), showed the singular Odontoglossum × "Golden Sheen," a clear yellow hybrid, bearing a few reddish spots, and having some resemblance to the rare O. Leeanum; varieties of O. × Adrianæ; the handsomely-blotched O. crispum "Sir Frederick," &c.

Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray), again showed a fine form of the charming Dendrobium × Cybele Oakwood var. (Findlayanum × nobile Burfordiense), the present form showing remarkably the lip-like colouring of dark purple and yellow on the lower sepals as in D. nobile Burfordiense. The flower segments are tipped with carmine-rose; the colour of the disc of the lip is dark purplish-crimson.

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, secured a Silver Banksian Medal for an effective group in which the varieties of Cattleya Mendeli were well represented, also Odontoglossum crispum, O. triumphans, Dendrobium Falconeri giganteum, D. thyrsiflorum, Cattleya Schroderæ, Ada aurantiaca, &c.

Messrs. B. S. Williams & Son, Victoria and Paradise Nurseries, Upper Holloway, staged a large group, the centre of which consisted of eighteen well-grown and flowered plants of varieties of Vanda tricolor, and suavis including "The Glen variety," insignis and superba—a very unusual exhibit in recent times. Other plants were a selection of hybrid Cypripediums, Odontoglossums, Dendrobiums, Cymbidiums, Devonianum, Phaius × Norman, Trichopilia lepida, &c. (Silver Flora Medal).

W. A. Bilney, Esq., Fir Grange, Weybridge (gr., Mr. Whitlock), was awarded a Silver Banksian Medal for a fine group, principally of grandly-grown Dendrobium nobile, D. Wardianum, &c.

Walter Cobb, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes), showed Cypripedium caudatum Moensii, C. Rothschildianum, Dulcote var., very dark in colour, and other Orchids.

Mr. Jas. Douglas, Edenside, Great Bookham, showed a group, in which were good Cypripedium villosum, C. Rothschildianum, Phaius × Cooksoni, &c.

W. A. Gillett, Esq., Fairoak Lodge, Bishopstoke, sent a small collection of splendid examples of cut spikes of Orchids, all remarkable for the evident vigour of the plants from which they were taken, especially the Odontoglossums which comprised one very fine O. Pescatorei, two good O. crispum; a very handsome O. × Coradinei, with eighteen flowers; O. × Andersonianum, of great beauty; O. triumphans, O. Halli xanthoglossum, two O. Rossii majus; a fine form of Vanda suavis; four good Dendrobium nobile, cut on the pseudo-bulb, one with carmine tips to the segments, specially distinct, and a nearly white form, also good, and a fine example of Dendrobium Wardianum.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), showed Cattleya × Cecilia (Lawrenceanum × Trianæi), also known as C. × Louis Chaton; and C. intermedia, "Fowler's var."

J. Sparkes, Esq., Heathside, Ewhurst (gr., Mr. D. Smith), showed a fine Cymbidium canaliculatum with several spikes.

G. O. Sloper, Esq., Highworth, showed a good Vanda tricolor, and Cypripedium × Dauthieri variety.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), again showed his magnificent Odontoglossum × excellens, Rosslyn variety.

Mrs. Parr, The Cedars, Upper Tooting, sent a form of Dendrobium macrophyllum.

F. M. Burton, Esq., Gainsborough, sent Cypripedium × Tautzianum lepidum.

Frau Ida Brandt, Riesbach, Zurich (gr., Mr. Schlecht), sent a finely-coloured Phalænopsis Luddemanniana, Lycaste candida Lawrenciana, Kiefersteinia graminea, &c.

AWARDS.

Masdevallia × Shuttryana, Chamberlain's variety (Shuttleworthi × Harryana var.).—One of the prettiest of hybrid Masdevallias, and quite distinct from the original M. × Shuttryana. The well-grown plant shown had a number of large rosy-mauve flowers with reddish tails. From Sir Trevor Lawrence, Bart. (First-class Certificate).

Odontoglossum crispum Ashworthianum, illustrated in the *Gardeners' Chronicle*, Feb. 16, 1896, p. 197.—A grand variety of the O. c. Baroness Schröder, and O. c. Frantz Masereel section, the greater part of the flower being bright rose-purple, relieved by slight irregular white lines and margin. From Elijah Ashworth, Esq. (gr., Mr. Holbrook). (First-Class Certificate).

Odontoglossum × Adrianæ "Lady Wigan" (O. Hunnewellianum × O. crispum). —A very pretty and distinct form with cream-white flowers, densely spotted orange-brown, and with the pretty crimped lip of O. Hunnewellianum. From Sir Frederick Wigan, Bart. (gr., Mr. W. H. Young). (Award of Merit.)

Dendrobium × Clio, Vine House variety (Wardianum × splendidissimum grandiflorum).—A fine form of this varying hybrid, in which the colouring of the lip approaches that of a good D. Wardianum. The inflorescence bore four flowers. From A. Warburton, Esq., Vine House, Haslingden (Award of Merit).

Odontoglossum Andersonianum obstupefaciens. — Flowers large, cream-white, with irregular curved blotches of red-brown. From C. J. Lucas, Esq., Warnham Court, Horsham (gr., Mr. Duncan), (Award of Merit).

Maxillaria Turneri.—Flowers allied to M. luteo-alba, white at the base of the segments, the blades yellow tinged with red, Honeysuckle-scented. From Walter Cobb, Esq , Tunbridge Wells (gr., Mr. J. Howes), (Botanical Certificate).

Fruit Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. R. Parker, Jas. H. Veitch, J. Cheal, W. Poupart, E. Shaw Blaker, A. H. Pearson, W. Pope, Alex. Dean, S. Mortimer, J. W. Farr, Geo. Woodward, C. Herrin, J. W. Bates, A. F. Barron, F. Q. Lane, W. J. Empson, Geo. Wythes, H. Balderson, W. H. Divers, J. Willard, and Robt. Fife.

Messrs. Geo. Bunyard & Co., Maidstone, contributed a collection of 100 dishes of Apples, in such condition as would be commendable at the end of the year—much more so in April. Very few of the handsome fruits showed the least sign of shrivelling, and such sorts as Blenheim Orange, Cox's Orange Pippin, Braddick's Nonpareil, and even earlier-ripening varieties were included. The New Allington Pippin was conspicuous, the fruits of same being plump and very fresh looking. The exhibit was the more interesting from the fact that Messrs. Bunyard displayed excellent illustrations of the interior and exterior of the famous fruit-room, where, at the Allington Nurseries, Maidstone, fruits are so wonderfully well preserved (Silver-gilt Knightian Medal).

Mr. Geo. Wythes, gr. to the Duke of Northumberland, Syon House, Brentford, showed dishes of ripe Figs, Pingo de Mel and St. John, two excellent varieties for early forcing; also capital bunches of Asparagus from the out-of-door beds. A Cultural Commendation was deservedly awarded to the latter.

Two Apples were shown for Certificates, but failed to obtain them on this occasion.

AWARDS.

Tomato Winter Beauty.—This is described as a seedling from Conqueror, a free-setting variety in winter, and an early fruiter. The fruits are of medium size, deep colour, and very little ribbed, except on the lower surface. A large quantity of fruits was shown by Mr. S. Mortimer, Swiss Nurseries, Farnham Royal (Award of Merit).

Onion Ne Plus Ultra.—A large globular Onion, somewhat resembling Ailsa Craig, and said to be a seedling from that popular variety, and Record. It has proved to be a better keeping Onion than Ailsa Craig, and the specimens shown by Mr. Dunbar, The Nurseries, Hemel Hempstead, were sound to a degree (Award of Merit).

Pea, Carter's Early Morn.—A first-rate early and dwarf-growing Marrow-fat Pea, grown under glass. Mr. W. J. Empson, gr. to Mrs. Wingfield, Ampthill House, Ampthill, showed well-filled pods (Award of Merit).

NATIONAL AURICULA & PRIMULA.

April 18.—Most admirers of the Auricula expected this show to be a poor one, and were agreeably surprised to find so good a display. All that could be done had evidently been resorted to, to have the plants sufficiently advanced by a certain date, for the season is a late one everywhere. Immaturity and a certain lack of finish were noticed in many of the trusses, as is always the case when they have to be hastened unduly. The green edges were on the whole rough, although here and there, there were exceptions; the grey edges also required more time; the white edges and a few of the selfs were in good form, and occasionally a pip nearing perfection could be noted.

The Alpine varieties, which always come more quickly into flower, surpassed in development their more stately relatives, the edged flowers and selfs; still, bright and attractive as the alpines are, they were lacking in numbers and finish. Even the Primrose and Polyanthus, usually such leading features at this show, were not so good as usual; the Primroses especially, for only one dozen plants were staged, and those with rough flowers. Not a plant of a double Primrose put in an appearance in the competitive class, the frost having injured them, and the generally cold weather retarded the appearance of such bloom as the frost had spared; but every grower did his best to make the exhibition successful.

Four collections of twelve varieties of *show Auriculas* competed, the 1st prize going to Mr. J. Douglas, Great Bookham, who had James Hannaford and Firefly, green edges; George Rudd, Dinham, and George Lightbody, grey edges; Venus, Acme, Lady Churchill, and Rachel, white edges; Cleopatra, Teresias, and Mrs. Potts, selfs. The green edges were rough; George Lightbody was in good character: though there was good size of truss, finish was wanting. Mr. C. Phillips, Bracknell, Berks, was 2nd, his trusses of bloom generally smaller than those of the preceding collection, but the quality was rather better. He had of green edges, the Rev. F. D. Horner and Mrs. Henwood, the latter the best green edge in the show, having some well-expanded pips; grey edges, Alderman Wisbey, Richard Headley, and George Rudd; white edges, Rachel, Marmion, and Acme; selfs, Mrs. Potts, Miss Barnett, Mrs. Phillips, and Black Bess. Mr. W. Smith, Bishops Stortford, was 3rd.

The best six varieties came from Mr. Phillips: of green edges he had Mrs. Henwood and the Rev. F. D. Horner; grey edge, Geo. Rudd; white edge, Acme; selfs, Mrs. Phillips and Black Bess. Mr. J. Sargeant, Cobham, was 2nd: he had green edges, Abbe Liszt and the Rev. F. D. Horner; grey edge, Rachel; white edge, Acme; and selfs, Ruby (Simonite), a fine deep red, and Mrs. Potts. Mr. Smith, was 3rd, showing a promising green edge, named Shirley Hibberd.

The best four plants were staged by Mr. J. W. Euston, gr. to Mrs. Whitbourne, Great Gearies, Ilford, who had Mont Blanc, grey edge, a striking flower of good substance and form; white edges, Marmion and Acme; and self, Blackbird. 2nd, Mr. A. R. Brown, Edgbaston, Birmingham, who had grey edge George Rudd; white edge, Heather Bell; and selfs, Heroine and Mrs. Potts. Mr. J. T. Bennett-Poë was 3rd. Mr. A. R. Brown had the best two green edges, The Rev. F. D. Horner; and self, Heroine. Mr. Euston came 2nd, with the Rev. F. D. Horner, and Mrs. Potts.

In the classes for single specimens, the leading awards went as follows:—Green edges: 1st, Mr. P. J. Worsley, Clifton, Bristol, with the Rev. F. D. Horner; 2nd, Mr. J. Sargeant, with Abbe Liszt. Grey edges: 1st, Mr. W. Smith, with Rachael; and 2nd with Geo. Rudd. White edges: 1st, Mr. Brown, with Acme; 2nd, Mr. Sargeant, with Heather Bell. Selfs: 1st, Mr. H. Hemnell, with Heroine; 2nd, Mr. C. Phillips, with Mrs. Phillips.

There were three collections of fifty plants, in not less than twenty varieties. To some outsiders it must appear that this class is a kind of refuge for the destitute, in which anything can be put which is not good enough for the classes. Mr. J. Douglas was placed 1st; of green edges, he had the

Rev. F. D. Horner, Rolt's Green (a variety in which the ground colour is red instead of dark), Lancashire Hero, in its green dress, Dr. Hardy, and seedlings; grey edges, George Lightbody, Frank Simonite, George Rudd, and Colonel Champneys; white edges, Acme, Venus, Rachel, and Snowdon Knight; selfs, Heroine, Mrs. Potts, Phyllis, Black Bess, and Ruby. Mr. C. PHILLIPS was placed 2nd, Alpine varieties largely preponderating, and THE GUILDFORD HARDY PLANTS NURSERY COMPANY was 3rd; the best quality appearing to be in this collection, as compared with Mr. Phillips; but the latter had the largest bulk of bloom.

The Alpines, always bright and effective because of their rich colouring, were fewer in number than usual, and not so well finished either. Mr. C. PHILLIPS, who is now our leading raiser of new varieties, was 1st with his own seedlings, having of gold centres—Myra, very fine; Evelyn Phillips, Mrs. J. T. Strange, Lady C. Walsh, Cassandra, a very novel flower, which may be accepted as forming a new break; Mrs. Martin Smith and Saturn, white-centre Perfection and Mrs. F. C. Barnett, these representing the leading varieties. THE GUILDFORD HARDY PLANT NURSERY were 2nd. Dean Hole, A. Maxwell, J. Gilbert, and Gannymede, were the best.

Mr. C. PHILLIPS also took off the 1st prize for six varieties, having Regina, Nigra, Topsy, Cassandra, Mrs. Gorton, and Perfection. Mr. EUSTON was 2nd: Rosy Morn and Colonel Kitchener were his two best.

Mr. A. R. BROWN was 1st with four varieties, staging John Allen, Dr. Knott, Mrs. Gorton, and Mrs. Bartholomews. Mr. P. PURNELL was 2nd.

The best specimen gold centre was Evelyn Phillips, from Mr. C. PHILLIPS; and he was 2nd with the same. Mr. PHILLIPS was 1st and 2nd with a white-centred variety, having Perfection.

It is difficult to describe a *Fancy Auricula*, but anything good in itself that cannot come into the other classes will stand for one. The best twelve came from the GUILDFORD HARDY PLANT NURSERY Co.; Mr. DOUGLAS was 2nd, and Mr. EUSTON 3rd. They were either named varieties or seedlings.

Fancy Polyanthus and Primroses, usually such an extremely attractive feature, were sparsely represented, and by no means up to the average. The March frosts did the plants much harm, and the birds have everywhere seriously damaged the flowers. Mr. DOUGLAS was the only exhibitor in each class, and was awarded 1st prizes. No double Primroses were forthcoming in the class set apart for them.

The collections of species and varieties of Primula is usually an attractive feature, but they fell short of their former quality; we missed the fine examples Mr. Douglas used to show so finely. Two collections of twelve plants were staged, but a plant having been withdrawn from one of them, only one lot competed. It came from Mr. P. PURNELL, and consisted of P. obconica, P. japonica, P. nivea, P. cashmeriana, P. floribunda, P. viscosa, P. rosea, P. Forbesii, P. verticillata sinensis, P. denticulata alba, and two varieties of P. Sieboldi. There were a few good pans in the unplaced collection. Mr. DOUGLAS was the only exhibitor of six species, having P. verticillata sinensis, P. obconica, P. nivea, P. intermedia (?), P. frondosa, and P. Auricula.

Miss JEKYLL, Munden, Godalming, had the best basket of Polyanthus and Primroses, consisting of fine white and yellow varieties; Mr. J. T. BENNETT-POË, was 2nd. Mr. P PURNELL had the 1st prize for a collection of varieties of Primula or Auricula in a box or basket not to exceed 12 superficial feet. The leading species were P. obconica, P. denticulata, P. floribunda, P. marginata, varieties of P. Sieboldi and P. Auricula, &c. These were tastefully arranged, showing the habit of each; the GUILDFORD HARDY PLANT NURSERY Co. came 2nd, with fancy Auriculas, arranged in an oval basket in a bed of moss.

Some classes were set apart for those growers who had never won a prize, but only one exhibitor put in appearance in one class, and his exhibit left much to be desired in the way of improvement.

The revived classes for *gold-laced Polyanthus* brought two collections of three plants. Mr. J. WESTON, Balham, an old grower, was 1st, with Monarch and Mrs. Brownhill, and a seedling; Mr. DOUGLAS came next with seedlings. Mr. WESTON was 1st with one plant, showing Lancashire Hero; Mr. DOUGLAS was 2nd with a seedling.

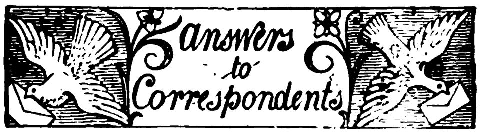
The premier *show Auricula* was Mrs. Henwood, green edge, with seven expanded pips, shown by Mr. C. PHILLIPS; the premier *Alpine*, Myra, a brilliant golden-centred flower, from the same grower; the latter was also awarded a Certificate of Merit. The seedling Alpines were rather poor, compared with previous years; the best varieties are not yet in bloom.

Obituary.

MR. GEO. BOUGHEN, of the Nursery, Sandringham, and forester to H.R.H. The Prince of Wales, died after a short illness, on the 16th inst., from pneumonia, in his 66th year. A man of sterling business habits, courteous and kind to all with whom he came into contact, he was affectionately respected. For over twenty years forester to the Prince, he had seen many changes on the estate, and his opinion was always sought both by the Prince, and his agent Mr. Beck, in regard to the various alterations and improvements that were made. Plain and unassuming in speech and manner, and thoroughly practical in all that appertained to his profession, deceased will be greatly missed by a large circle of friends.

ENQUIRY.

LADY HUME CAMPBELL VIOLET.—Can any reader oblige with information concerning the place of origin and parentage of this Violet?



Answers to Correspondents

BOTANICAL GARDENS: *K.* A list of British and colonial gardens is published in the *Kew Bulletin* each year, and in the *Horticultural Directory* for the current year, published at 12, Mitre Court Chambers, E.C. There are botanical gardens at the capital of most European countries, with the exception of Turkey, Bulgaria, Servia, Roumania, &c.

CORRECTION.—In Flower Garden Calendar, issue of *Gardeners' Chronicle* for April 15, "List of Annuals," read Anagallis for Amaryllis.

CUCUMBER: *C. S. B.* We cannot trace the cause of the malady; the soil seems suitable. Are there any knobs on the roots?

DISHONEST EXHIBITING: *Inexperience.* We should advise a rule being added to the schedule, disqualifying all exhibits not the *boná fide* growth of the person showing. To enable the society to carry out this rule in a satisfactory manner, an inspection of gardens should be made by a small expert committee a few weeks previous to the show. No honest exhibitor would object to this being carried out.

FOUNTAINS: *G. K. P.* It is against our rule to recommend traders. Why not consult our advertisement columns, or those of other journals? With regard to the name of the maker of those at Holland House, a note addressed to Mr. Dixon, the head gardener, might elicit the desired information.

GREEN-FLY ON PLANTS OF MAIDENHAIR FERN: *C. G.* The surest and safest means is the XL-ALL vapour (Richards').

HORTICULTURAL TEACHING: *A. B.* Apply to Mr. Webb. Books alone will not enable you to pass any examination. They must be used only as aids to practical work.

INSECTS: *J. R.* Orthesia insignis; a very troublesome coccid in a few localities in Great Britain. In Ceylon it is a very serious pest, and is known by the name of the "Lantana Bug." Take infested plants from the house, and remove insects with a large dry camel's-hair brush. Repeat this at intervals of eight to ten days for a few weeks, and do not allow the insects to attain their long white tails (ovisacs). A weak soap wash may be found effectual, but the insects are hard to kill. *R. N.*

MILDEW ON ROSES: *W. D.* Roses in some localities seem peculiarly liable to attacks of mildew, and cultivators living in such should take precautions in good time. When the plants are at rest they should be washed with Gishurst Compound soap, at the rate of 3 ounces in a gallon of hot water. During the forcing until flowers appear the plants should be wetted with sulphide of potassium at the rate of half an ounce in 1 gallon of rain-water. If there are no permanent plants in the forcing-house, some flowers-of-sulphur may be sprinkled over a potful of slaking lime before forcing begins in the house.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. M.* Festuca ovina, glaucous variety.—*E. C. O. D.* Alchemilla arvensis, a weed, with green flowers.—*F. D.* 1, Forsythia suspensa; 2, Muscari racemosum: 3, Daphne Mezereum.—*A. B.* We cannot undertake to name garden varieties; they are too numerous. 1, a form of N. incomparabilis; 2, one of the Barri section, from incomparabilis; 3, Narcissus bicolor; a form of Pseudo-Narcissus.—*J. E.* Akebia quinata.—*R. C. N.* Iris tuberosa.—*A Reader.* 1, Clianthus puniceus; 2, Gloriosa superba.—*A. B. C.* 1, Bifrenaria Harrisoniæ; 2, Lycaste macrobulbon.—*M.* 1, Dendrobium crassinode Barberianum, a very good variety; 2, D. Pierardi; 3, D. Wardianum, a fine variety; 4, D. devonianum.—*K. P.* 1, Cyrtopodium Andersoni; 2, Bifrenaria Harrisoniæ.—*W. D., Shrewsbury.* 1, Dracæna fragrans; 2, D. amabilis; 3, D. pulcherrima; 4, D. terminalis; 5, D. reginæ; 6, D. marginata.—*R. T.* 1, Richardia Pentlandi; 2, R. Elliottiana; 3, Dendrobium nobile, a very fine large form; 4, D. nobile, good in colour; 5, Croton interruptus.—*W. H. H.* 1 and 2, very pretty forms of Dendrobium nobile.—*G. F. T., Oak.* 4, Euphorbia mellifera.

ODONTOGLOSSUM VUYLSTEKEANUM: *De B. C.* Reichenbach's description is rather vague, but he rendered the matter clear when he wrote (see *Gardeners' Chronicle*, p. 7, vol. xxii., 1884): "As for me, I well know this is no botanic species." Orchidists generally know this fact.

PEACH-LEAVES AND FRUITS INJURED: *J. F.* It is a case of scalding by sun-heat, together with lack of ventilation. This might readily occur in a lean-to house facing due south, in variable April weather. The gardener in charge cannot well be too alert in affording air at this season to forcing-houses; moreover, the leaves being very tender, are more readily injured now than later. There may be defective panes of glass in the roof.

SHELLS IN SOIL: *P. N. F.* The bivalve shells are those of Sphærium corneum, Linné, the commonest one of the so-called "freshwater cockles." I have never heard of fish swallowing the shells, but have no doubt but that the soft parts would prove a most acceptable morsel to the piscine palate. *W. M. W.*

SULPHIDE OF POTASSIUM ON VINES WITH FRUIT SETTING: *Vitis.* It is a ticklish stage at which to employ the sulphide against mildew, and we would advise you to try its effects on a few affected bunches and leaves first, then, if no harm is apparent, proceed further. A suitable strength is ½ oz. to 1 gallon of water. There is no remedy for red spider better than sponging the leaves with warm water.

TOMATOS: *A. R. S.* Your Tomatos are attacked by a fungus. Syringe them with a solution of sulphide of potassium.

VINE-LEAVES DISEASED: *One in Ignorance.* The check in growth is due to the powdery mildew, Oidium Tuckeri. Dry heat and want of ventilation are probably the conditions which have given rise to it. The disease should be checked now, as it will affect the fruit. To check the fungus, use flowers-of-sulphur dusted thinly and evenly over the affected plants, and sprinkle the soil beneath. Or, it may be syringed on, mixed with water. The disease is not difficult to control if the air of the house be looked to and sulphur used. If sulphur is too slow, try a weak sulphide of potassium.

VINES SHANKING, LEAVES THIN AND WARTY: *Vine leaves.* The first is due to unwholesome soil leading to loss of the feeding roots; to the roots being at too great a depth from the surface or to over cropping and wholesale instead of gradual removal of shoots and foliage—which it is in your case we are unable to indicate. Examine the border and the roots, and be especially inquisitive concerning the drainage if the natural soil is retentive. The wartiness and thinness of the leaves are conditions due to lack of ventilation and excess of moisture, the latter being usually the correlative of the former. The obvious remedy is more air, even if a little more fire heat has to be employed and less damping down. We would advise you to employ, in damping down, less chemical manure, soot, and cesspool-stuff, and to rely on clean water. If the vine roots are in a diseased state, the application of manure-water to the border will aggravate matters.

COMMUNICATIONS RECEIVED.—W. K., Aberdeen.—W. Siehe, Mersina.—C. S., Darmstadt.—De B. Crawshay.—F. S.—The Director Royal Gardens, Kew.—M. B., Middelburgh.—W. G. S., Dunstable.—H. G., Ryde.—W. & N.—H. P. M.—C. W. D.—L. C.—H. H. D O.—A. D.—J. B. D., California.—W. G. S., Leeds.—H. W.—Comm. Hanbury.—F. World.—J. O'B.—E. C.—C. E. H.—W. Swan.—W. H.).—H. M.—A. W. K.—J. L.—E. H. S.—W. Strugnell.—Hubert B.—A. C. C. H.—C. R. F.—T. Coomber.—Royal Institution, Great Britain.—H. W. W.—R. L. H.—D. T. F.—P. B.—E. M. H.—W. S.—W. H. G.—W. Siehe, Mersina.—C. W. D.—H. E., Ryde.—E. J.—H. W.—W. C.—Seeds.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—G. M., Canterbury.—O. E. Menzel, S. Australia.

(For Markets and Weather, see p. x.)

THE
Gardeners' Chronicle
No. 644.—*SATURDAY, APRIL* 29, 1899.

WHEAT AND TULIPS.*

WITH the first of these subjects we need not here concern ourselves; but the second—the Tulip—has great interest for us, and doubtless for many of our readers. The learned professor could scarcely have sought a more interesting exotic plant than the Tulip, nor one the investigation of whose history in Europe was more worthy of his pen. He has evidently spared no pains in acquiring information from ancient writings, MSS., rare books, paintings, and mosaics, and he has arrayed his facts, and marshalled his conclusions in a masterly manner. If hypotheses have to be advanced in order to explain the necessary connection in the lines of advance of the Tulip from East towards the Atlantic, they are extremely modest, and never in any case offend by reason of extravagance.

Commencing with Tulip australis, Link, he combines under it, 1, the smallest-flowered varieties, namely T. Celsiana, D.C., a native of Southern France, the Maritime Alps, and the Tuscan Apennines; T. transtagana, Brotero, of Portugal and Spain; T. fragrans, Munby, from N. Africa; 2, T. alpestris, Jordan, from the Alps of Savoy; 3, T. Grisebachiana, Pantoscek, from the Herzegovina; 4, T. Biebersteiniana, from Southern Russia; 5, T. sylvestris, to which belongs, in consequence of a basal purple patch in the bloom, the strikingly dissimilar Grecian T. Orphanidea, Boissier. Among these forms, T. sylvestris is, he tells us, by far the most widely distributed of all, being found in the whole of Italy, France, Germany, Southern Sweden, and England. According to Levier, it is met with in Attica and Laconia, whilst its allies are, when not transplanted by man, mostly to be found in their native habitats in cultivated land, in vineyards, fields, and parks, and in the vicinity of such places. Only in Greece, Sicily, and the neighbourhood of Montese in the Bolognese Apennines are they now found in the primeval habitats (Levier). Whether they are indigenous to England and North Germany, remarks the author, is doubtful, as De Candolle in 1855, in his *Plantes de Naturalisation à petite distance*, recorded with a mark of interrogation; but as Caruel with certainty showed, in 1879, these Tulips, when found in districts about which there never has been a doubt, as in Tuscany, they form a comparatively recent addition to the flora. Cesalpino (1583) knew of no other habitat for the plant, known then under the name of "Lonchites," than Barga, in the Upper Serchio valley; and de l'Obel (1575) knew of them only in the vicinity of Bologna, and called them Lillionarcissus Bononiensis luteus.

Other writers, Clusius among the number, mention Bologna as the habitat of the Bolognese Tulip, a name that was adopted by all the writers of the seventeenth century. There exists in Florence a manuscript catalogue, most carefully got up by Micheli at the end of the seventeenth century, and from this appears a single habitat of the Bologna Tulip, namely, a spot opposite to the gate of the town; so that it must have been, as it is now, a common plant at Florence and Lucca. Our author thinks that the field Tulip, having become common in Italy at that period, it was an easy matter for the bulbs to find their way to countries north of the Alps, thus throwing doubt on the indigenousness of the plant in Germany, England, and elsewhere. That good grounds exist for such doubts is shown by the fact that in the Upper Rhine Valley the yellow Tulip has a very irregular distribution. In Baden this species grows sparingly in a few places on the flanks of the Black Forest, and at Heidelberg, but it is entirely missing from the flora of Freiburg; whilst in Alsace it is much more abundant, and is detested by the Vine-growers of the Colmar district as an indestructible weed. It is found in the Vine-covered hills of Mülhausen, and in Lower Alsace in many places, as was noted by Kirschleger. In Heidelberg this species was observed in 1782; but in Upper Alsace, however, the first discovery was made in 1794, according to a written notice in the Leipzig University Library, by Mappus, which Hermann says was mentioned by Kirschleger. It is noted there "odorata est. In quibusdam vineis inter Niedermorschwehr et Ingersheim adeo frequens est, ut floris tempore solum flavedine lacteum sit. Ut Hyacinthus botryoides mala herba, Bartholdy und 'Miror Hallerum' dubitare indigenam esse. Miror Mappum qui Alsatiam superiorem frequentius adiisæ videtur non habere. Copiose crescit ad Colmariam, in den Rebstücken auf dem Türckheimer Berge gegen dem Katzenthal, hinter Ingersheim, ubi *Holtz* amicus filii detexit, 1794."

From this passage it would seem that the species was, at that time, unknown in Lower Alsace, whilst to-day it is found in the immediate vicinity of Strasburg, at Kolbshain plentifully, also at Oberehnheim and Mittelbergheim. In Niedermorschwhir it is so abundant in the vineyards that these are yellow with the blossoms. In the neighbouring Switzerland, it was at that period scarcely known, otherwise Haller, 1768, as quoted by Herman, would not have said "non credo veram esse civem et si passim in pratis circa urbem reperitur. Cum tamen Linnæus inter indigenas enumerat non visum est patriæ hoc ornamentum negare. In prato plano et regione urbis, in altem Berg." In Wurtemberg it is not ascertained for certain that the species exists, although Ulm is mentioned by Martens and Kemmler, 1865, as a habitat. *Leopold's Flora*, of this city, 1728, does not include it.

The plant is entirely missing to-day from Bavaria, and in *Franconia*, Volkamerus, 1700, says that "Tulipa boloniensis lutea in hortis." In the vicinity of Leipzig and Halle, the older authors mention it as being only a garden plant. In Saxony and Silesia it is not found in a state of Nature, but only as a garden escape. In Austria the plant rarely occurs; Monte Maggiore, near Fiume, is named by Huss, 1797, and a few other sites.

Linnæus was made by Haller to say that he believed T. sylvestris to be a native plant, but the exact opposite was the case, as he says in the second edition of *Flora Suecica*, 1755, that it was a recent garden escape. Strange to say, Fries perpetuated Haller's new translation in his *Flora Scania*, 1835, p. 170. The old French *Floras* confuse the true Tulipa sylvestris with T. Celsiana, a native of Southern France, and for the purpose of the author they cannot be taken into account. No mention is made of the species by Vaillant, 1723, or by Dalibard, 1749; and Bulliardi, much later, without comment, terms it a wild Tulip.

In England, the species occur on chalk soil in Norfolk and Suffolk; and Hooker, 1870, says it is "possibly wild." Smith also, *Flora Britannica*, 1800-1804, declares it to be indigenous; but Hudson, *Flora Anglica*, 1762, does not mention it. It would therefore appear that Tulipa sylvestris is not indigenous in Germany, France, Sweden, and England, and that its distribution took place in the course of the second half of the 18th century. It is characteristic that the spread of the plant did not occur gradually northward, like Senecio vernalis, or westward like Puccinia Malvacearum, but rather suddenly everywhere.

This sudden appearance was simply due to the fact, that distribution took place from numerous centres, the botanical and private gardens in the countries mentioned, by exchanges and sales long before the plant became wild generally. Even in Italy T. sylvestris was certainly much cultivated in gardens.

If this should seem remarkable to us, for the slight fragrance of the bloom could scarcely have been the inducement to its cultivation, we must remember that the Tulip belonged to the fashionable flowers of those times, and everyone endeavoured to secure the finest and most complete collection of them, from which certainly Bononiensis lutea would scarcely be omitted.

Whilst it is easy to trace the time and mode of distribution of the species from Bologna, it is not so easy to account for its first appearance there, which must have occurred in remote ages. That the species is not indigenous to Bologna appears from the writings of Mattei, in which it is stated that the plant was found in cultivated land, namely in Acacia and Gleditschia woods, and never in virgin land. In this matter he pays no regard to the statements of others, that it is found in the Bologna Apennines by Montese, a certainly primæval habitat, also in the Apuan and higher Apennines where Tulipa Celsiana is commonly found. Mattei believed in the Tulipa Celsiana having descended from the higher mountains to the lower foot-hills, and the result of changes in the climatic conditions originated the Bologna Tulip, its appearance occurring about Bologna in historical times.

This opinion of Mattei finds several supporters and opponents; among the latter Krelage, who carried out experiments in Holland with T. Celsiana, but with negative results, seeing that the plant had been cultivated in that country from the time of Clusius, and remained essentially constant, and never became like T. sylvestris; and the author gives a number of reasons why that should so be.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT GUNNERSBURY HOUSE.

THOSE who were fortunate enough to see the magnificent group of Dendrobium formosum giganteum, staged by Mr. Jas. Hudson, gardener to Messrs. de Rothschild, at the Royal Horticultural Society, on October 11, 1898, greatly admired the specimens, though many doubted if such success could be maintained in the case of such a reputedly bad doer. Several of the plants shown had been in Mr. Hudson's care for seven or eight years, although with these exceptions the plants were imported two years ago. The group consisted of thirty-four plants, bearing together about 700 large pure white flowers with yellow discs to the labellum, the shade of yellow varying in the different specimens.

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* *Weizen und Tulpe und deren Geschichte*, von H. Grafen zu Solms-Laubach, Professor der Botanik an der Universität, Strasburg. Leipzig: Verlag von Arthur Felix, 1899.

A recent visit to Gunnersbury House has shown that specimens are not only sustaining their vigour, but are increasing in size and in the number of their young growths, which are now pushing strongly in the warm house in which they are suspended. Further evidence that the treatment the plants are given is salutary may be seen in the several young seedlings raised from the seeds brought over on the roots of the importations, and some of which are approaching maturity.

Many cultivators utterly fail to get this fine nigro-hirsute Dendrobium to thrive for any length of time, and some help may be obtained from briefly considering Mr. Hudson's method. Of course, with this, as with many other Orchids, something depends on getting suitable places in which they can grow and rest. That being secured, Mr. Hudson holds that if the warm-growing season and the cooler dry resting season be observed, no difficulty should arise. But as a means of preventing stagnant moisture at all seasons, he attaches much importance to his plan of using good-sized pieces of virgin-cork beneath and areund the plants, which with the cork, are fixed with sphagnum-moss in the baskets in the usual way.

A general collection of Orchids is not attempted at Gunnersbury House, only batches of showy things; but even the most difficult, such as Vanda cœrulea, seem to thrive remarkably well.

The many ranges of fruit-houses are well-cropped, especially the vineries, Strawberry-houses, and Orchard-houses. Some of the stone fruits in pots are thinly cropped, the fogs having destroyed the flowers and newly-set fruits.

The new Bamboo-garden, and the bog-garden beside the lake, with the new coloured Water-Lilies, will soon form fine features in the pleasure-grounds. *J. O'B.*

VANDA TERES AT GUNNERSBURY PARK.

Those who are disposed to think that Vanda teres is a shy-flowering species, should have seen it at Gunnersbury Park at the end of the third week in April. It was then grandly in bloom at the west end of a lean-to stove. This house faces south, and a line of plants in a long box occupies the end of the house close to the glass, which is fully exposed to the sun after 11 o'clock in the day. A passage-way down by the end of the central pit divides the front line of plants from one which has its box resting on the brick side of the pit. The two lines of plants, one behind the other, make up a length of from 9 to 10 feet each, and between them they had about 160 expanded blossoms, and wonderfully fine ones, too. It was a glorious sight, I say was, because three days after the flowers were all cut for sending to Newmarket. The plants are growing in a mixture formed of clean crocks, charcoal, and sphagnum. Mr. Reynolds holds that the position occupied by the plants has a most important bearing on their well-being. At the end of May or the beginning of June, the plants are cut clean through just above the surface, the boxes are re-soiled, and the severed plants, which have ample roots, planted in the fresh soil. Moisture is reduced as the days shorten, but augmented as spring approaches. This glorious species can scarcely be seen under better conditions than at Gunnersbury Park. One or two plants show more distinct and richer markings than those of the type, and will probably be known as the Gunnersbury Park variety. *Four.*

ONCIDIUM WARSCEWICZII.

This pretty Oncidium, discovered by Warscewicz on the Chiriqui Mountain at 10,000 feet altitude, never seems to have been imported in quantity, though, in 1870, Messrs. Veitch & Sons obtained from Costa Rica a few good plants. Since then it has appeared occasionally, but never in sufficient numbers to bring it into prominence. It is characterised by large bracts at the base of the flowers, which are about 1½ inch in width, and of an uniform bright yellow colour, the blade of the lip extended on a long claw or isthmus. The species is also known as O. bifrons. A fine inflorescence has come to hand from the collection of Mrs. Ida Brandt, Riesbach, Zurich.

MAXILLARIA TURNERI.

This pretty and fragrant Orchid appeared many years ago in the then famed collection of Mr. Turner, and for many years the only plants of it in gardens were pieces taken from the original plant, even if the whole of the stock now in cultivation is not so. It affords a proof that Orchids need not degenerate under cultivation. A fine plant is now in flower with Walter Cobb, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes). Each leading growth produces a number of flowers. These have narrow segments, the bases of which are white, the upper portions yellow tinged with reddish-brown, especially on the reverse side, and exhaling a pleasant odour of the Honeysuckle. Some regard it as a variety of M. luteo-alba, but both the plant by its brownish tint, and the plant and flowers, have other characters which render it distinct from that species.

ODONTOGLOSSUM ADRIANÆ "LADY WIGAN."

A few years ago there appeared in an importation made by Messrs. Linden, of Brussels, a series of very pretty Odontoglossums, which had the form of O. Hunnewellianum to a great degree, and the new arrivals were supposed to be the result of a natural cross between O. Hunnewellianum and O. crispum, and forms of them were figured in the *Lindenia* under the name of O. Adrianæ. Later, several forms of it appeared with cultivators in England, one of the prettiest being the variety named above and here illustrated (fig. 95), shown by Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), at the meeting of the Royal Horticultural Society, on April 18, when the Orchid Committee gave it an Award of Merit. The neatly shaped flowers were cream-white spotted with brown, the crest being bright yellow.

DENDROBIUM × CYBELE, OAKWOOD VARIETY.

The original form of this graceful cross between D. nobile and D. Wardianum was raised some years ago by Messrs. J. Veitch & Sons. The present variety (fig. 96, p. 259), was raised by Norman C. Cookson, Esq., Oakwood, Wylam, Northumberland (gr., Mr. William Murray), the form of D. nobile used being D. nobile Burfordiense, which, it will be remembered, gave a case of trilabellia, as in D. n. Cooksoni, except that the labelloid markings in imitation of the lip appears in the lateral sepals instead of in the petals, as in D. n. Cooksoni, and in most other cases of irregular peloria in Orchids. The batch raised by Mr. Cookson displayed great variety, but the plants were tolerably constant in the markings on the lower sepals, although they differed in tint. The flowers of this charming hybrid are white, tinged and tipped with bright rose colour; the disc is purplish-crimson on an orange-coloured ground.

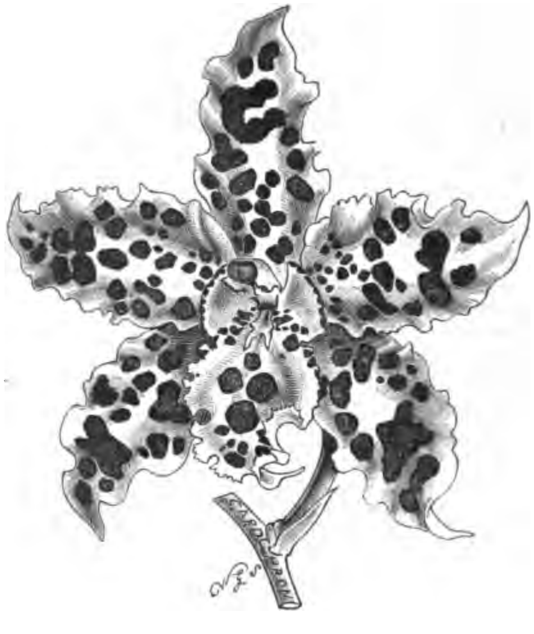

FIG. 95.—ODONTOGLOSSUM ADRIANÆ "LADY WIGAN."

THE BULB GARDEN.

HYMENOCALLIS.

THE species of Hymenocallis proper (excluding Ismene) possess white fragrant flowers, which are sessile, or nearly so, and have green filaments and styles. The species are so much alike that the nomenclature of these plants is in a confused state in many gardens. All require, with perhaps one exception, stove treatment, and copious supplies of water when growing. H. tubiflora and H. littoralis, the latter a warm greenhouse plant, grow best with the pots partially submerged. They must be shaded from strong sunshine when growing, and are benefited by syringing on bright days. Manure-water, preferably from cow-houses, will help them considerably; soot and lime-water sprinkled on the pathways will intensify the rich green of the leaves. They enjoy a fairly ample root-run of sandy loam, mixed with one quarter of its bulk of well-rotted leaf-mould; stronger growing plants, such as H. speciosa, H. littoralis, and H. caribæa, may have an addition in dried cow-manure broken into small nodules. When growth is completed, it is advisable to rest them in a pit or house having a temperature of 55° to 60°, decreasing the amount of water at the same time. As they are not deciduous unless rendered so, they must not be allowed to become quite dry, or the leaves will suffer. Over-dried bulbs take some time starting into growth again, and in this state they are susceptible to the attacks of the bulb-mite.

One of the most distinct is H. tubiflora, with thin ovate lanceolate leaves a foot or more long, 5 inches broad at the middle, with a short petiole. The peduncle is short and slender, and bears an umbel of ten or more erect flowers, with long slender tubes and drooping linear segments 4 inches long, and a small, not toothed, occasionally plicate staminal cup. This species is now becoming common in cultivation, owing to the demand for its long tubular flowers in a cut state.

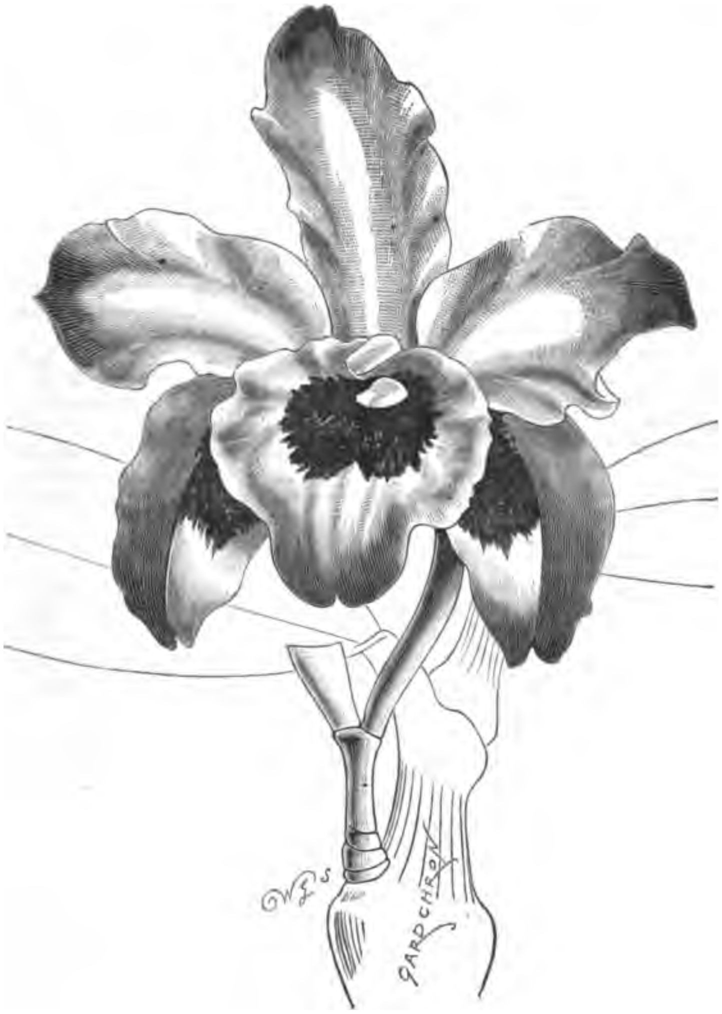

Fig. 96.—Dendrobium Cybele. (See p. 258.)

H. undulata.—This species has leaves similar in shape to those of H. tubiflora, but with a longer and more slender petiole. The peduncle is stout, 1 foot or more high, with an umbel of eight or more flowers, each 6 inches long and wide, with a slightly curved tube, narrow segments, a toothed staminal cup, and red-tinted filaments. This species is largely grown on the Continent under the name of Pancratium undulatum. It is a native of Venezuela.

H. speciosa.—This is a plant which varies a good deal in the shape of the leaves, as in H. caribæa, H. Moritziana, and H. ovata to H. eucharidifolia. The leaves of the type are tough, usually twelve in number, each 1½ to 2 feet long, 6 inches broad, with a short winged petiole. The flowers range in cultivated forms from 6 to 12 inches in diameter and length, and consist of a stout tube, segments up to half-an-inch in width, and a toothed staminal cup 1 to 2 inches across. They usually appear in the autumn.

H. caribæa.—This plant is mostly confused with H. speciosa, which it much resembles. It differs in having leaves upwards of 2 feet long, 3 inches broad, thin in substance, and the flowers more closely arranged on the top of the peduncle, and furnished with shorter tubes. Its variety patens has a long slender peduncle, with longer and thinner flowers.

H. expansa has narrower and longer leaves and flowers than in H. caribæa, otherwise there is no apparent difference.

H. Moritziana produces leaves with the blade 1 foot long, 6 inches wide, with a long stout petiole, much resembling those of Eucharis grandiflora. The flowers, produced in early spring, are thinner and more lax than in H. speciosa, otherwise there is no difference in cultivated specimens.

H. eucharidifolia.—This is a compact plant, with leaves 8 or more inches long and broad, with a very short-winged petiole, the leaves being alternately arranged around a thickened stem composed of the sheathing petioles. The peduncle is a foot in length, bearing a dozen flowers, which do not materially differ from those of H. speciosa, or H. Moritziana. It is a free-flowering plant, taking up but little room; the flowers it produces are quite as good as those of more bulky species. It comes from Venezuela.

H. ovata.—This species resembles H. speciosa under cultivation, differing only in having smaller, almost sessile, ovate leaves a foot long, shorter flowers and peduncle. A plant I have, under the name of H. filamentosa, is either a form of this species or H. speciosa; it is distinct only in the unusual length of the filaments. The flowers of typical H. ovata are very lax and poor, but, under high cultivation, the flowers and leafage greatly improve.

H. littoralis.—This species may be accepted as the type to which H. disticha, H. tenuiflora, and H. senegambica, are allied. It is extremely variable in leaf and flower. The leaves of the type are 2½ feet long, strap-shaped, or narrowly lanceolate, sessile, up to 2 inches wide, glabrous-green in colour, and tough in texture. The flowers average ten to an umbel, and consists of a tube half-a-foot long, ending in recurved, and occasionally twisted segments, 4 inches long, adnate to the base of the staminal cup. This cup is an inch in length and width, toothed, and occasionally plicate when the flower first opens. It may be grown successfully in a warm greenhouse, but should not be over-fed with manure, or the flowers will come with fasciated filaments and distorted perianth-tube. *H. tenuiflora* is a species from New Granada with slimmer flowers, otherwise resembling H. littoralis, or some of its many forms.

H. senegambica.—A species from West Africa, which, though geographically removed from H. littoralis, a New World species, differs only in having a wider staminal cup, which becomes almost rotate as the flower ages. It requires stove-house temperature to do it well.

H. Harrisiana is a plant of small growth, with leaves 1 foot long, a short slender peduncle, bearing three flowers with slender tubes and narrow segments, the staminal cup being small, and curiously plicate. It is a native of Mexico, and a comparatively recent introduction into gardens, though known as far back as 1838.

H. lacera has narrow, sword-shaped leaves, similar to those of H. littoralis; the flowers are much shorter than in that species, with a spreading, almost rotate staminal cup. It is a native of the Southern States, and may be grown successfully in the warm greenhouse. Poor forms of this species are hardly worth cultivating, when so many richer-flowered species are available.

H. macrostephana.—This plant is considered to be a hybrid between H. speciosa and H. (Ismene) calathina. The leaves are 3 feet long, 3 inches broad at the middle, sessile, with a sheathing base. The flowers are produced in an umbel of eight, and consist of a short tube of a greenish-white colour, white segments, 3 inches long, half an inch wide, and a wide funnel-shaped, partially-dilated staminal cup, the free ends of the filaments being incurved—a characteristic of Ismene. It requires the same treatment as given to H. speciosa. *G. B. M.*

SPONTANEOUS HYBRIDS OF HARDY PLANTS.

(*Continued from p. 210.*)

Campanulas.—No spontaneous hybrids of Campanula have ever shown themselves in Edge garden, except in what I call the C. rotundifolia section, including C. rhomboidalis. These seem to cross freely together, and it is easy in my garden to pick out a series in which all the so-called species would seem to be concurrent. C. rotundifolia itself, as a native species, is so remarkably variable in stature, in shape and size of flower, in breadth and form of leaf, and these distinct varieties so often prevail in well marked areas, that botanists are tempted to make several native species; but Godron remarks in his *Flora of France* that the whole section is such a little chaos, that he acquiesces in the conclusions of his predecessors, though hardly any two of them formed the same conclusions! However, all these crosses are unfortunately fertile, though with anything approaching to isolation parents reproduce themselves with constancy, as they do in many other varieties of species amongst hardy plants.

There are five or six well-established hybrids of Campanula known in gardens, C. Van Houttei (including its pale form, C. Burghalti), C. Hendersoni, C. haylodgensis, and two or three forms known as G. F. Wilson. In *Index Kewensis*, the first three are printed as species of unknown habitat, notwithstanding the prevalent opinion that C. Van Houttei and C. Hendersoni are hybrids raised, either artificially or by accident, by the nurserymen whose names they bear. C. Hendersoni is almost certainly C. carpatica × C. pyramidalis; C. haylodgensis and the G. F. Wilson's are known to have been raised by artificial crossing about thirty years ago by the late Mr. Anderson Henry, of Hay Lodge, in Mid Lothian. The former was said to be C. carpatica × C. pusilla, and the others, C. carpatica × C. pulla. Indeed, their pendulous flowers suggest C. pulla, and there has lately been distributed from Mr. Archer Hind's garden in Devonshire, a similar spontaneous hybrid known to be a seedling of C. pulla. Having grown these hybrids for many years, and having, year after year, looked for seed on them in vain, I have come to the conclusion that they are all barren, though more than once in seed catalogues of botanic gardens I have seen seed of C. Van Houttei offered, but I have never been able to get it, and should be glad to know if anyone has ever raised it.

Before leaving Campanula, I mention an obscure and mysterious form, C. planiflora (Lam.) syn. C. nitida (Aiton). It is wrongly referred in the *Index Kewensis* to C. pyramidalis, with which it has nothing in common. As Gray rightly classes it under C. persicifolia, but says it has never been found wild anywhere, much less near Hudson's Bay, as former botanists asserted. Though there is a double form, I have never heard of seed of it; it may possibly be a hybrid, but I believe it to be a persistently stunted form of C. persicifolia. Anyhow, a plant of it has come in my garden amongst seedlings of C. persicifolia.

Poppies.

Hybrids amongst Papaver are rare, and I have found them invariably barren, though they may develop fruit well-developed and sound. The many varieties of P. orientale and P. bracteatum are not properly hybrids, as these two belong to one species; but the most interesting hybrid Poppy I have, came originally from Mr. Carrington Ley's garden, near Maidstone, and is P. rupifragum × P. orientale. The same plant of P. rupifragum growing there by the side of P. orientale has produced several successive crops of hybrid seed. I have twice raised perhaps a hundred plants from seed he sent me gathered from it, and they are perfectly constant, being very good garden plants, flowering abundantly in summer and autumn, ripening fruit, but never a seed. Mr. Carrington Ley's Poppy is not the only instance I have known of the same plant producing only hybrid seed year after year. I have in vain tried to produce the same hybrid artificially in Edge garden. The only other hybrid Poppy I have seen, which came here spontaneously, was P. caucasicum × P. Rhœas, two very distinct species. The intermediate characters were unmistakeable. The few plants which came were, of course, annual. I have recently sent a note to the *Gardeners' Chronicle* concerning P. commutatum (E. Boissier, syn. P. umbrosum, Hort.), which has for many years grown here, and ripened seed, mixed in the same bed with P. Rhœas. The seed of P. umbrosum is blue, and can at once be distinguished from that of P. Rhœas, and so can the seedlings at every stage, and I have never seen an intermediate form, yet the *Kew Index* treats the two as specifically the same. I have seen in seed catalogues "Hybrid Poppies" of particular colour and markings, offered, said to be between P. Rhœas and P. somniferum. If such a hybrid exists, which I doubt, the offspring certainly would not be constant.

Saxifragas.

A short notice should be taken of hybrid Saxifragas. Several of our best winter-flowering forms are known to be hybrids, as S. apiculata, from which I have never got seed, and two very choice Saxifrages, bearing the name of Mr. Boyd, their raiser. One, with pale yellow flowers, is presumably S. Burseriana × S. aretioides; the other, with white flowers, probably S. Burseriana × S Rocheliana. Both are sparingly fertile, and I have raised seedlings from them all reverting towards S. Burseriana, and inferior to their parents. S. Burseriana is a variable species, and it is not always easy to say whether seedlings of it are hybrids or typical. I have at least one hybrid which I refer to it, crossed spontaneously with S. Rocheliana. The flowers are large, pure white, and nearly sessile; the foliage and habit resemble the yellow S. Boydi, but the flowers are produced very sparingly. A hybrid named S. Macnabiana, like a compact and elegant form of S. Cotyledon, comes nearly true from seed, a rare character in hybrids. S. longifolia from home seed shows many signs of being hybridised. In its native home it mixes freely with S. Aizoon, and this is probably the commonest foreign pollen parent, but I find most of the incrusted Saxifragas so uncertain from garden seed that I cannot say anything definite about their hybrids. As far as I have observed, these are mostly more or less fertile. *C. Wolley Dod, Edge Hall, Malpas.*

(To be continued.)

CONIFERS.*

(Concluded from p. 227.)

Grafting.—All Conifers, if not too resinous, may be grafted; but, however successful this operation may be, grafted plants are never so successful as seedlings, because they rarely make perfect "leaders," and symmetry is thus sacrificed; this is most marked in Pines and Firs.

In grafting, the selection of the "stock" becomes an important item, for before we can "graft," we must have something to graft on, and this "something" must be suitable, or the grafts will not "take." The best stock for Thuyas is the American Arbor-vitæ (T. occidentalis); T. orientalis, however, refuses to unite with this. Thuya gigantea is equally good. For Junipers, Juniperus virginiana is best; and for the Cupressus family, use C. sempervirens. Larix europæa is a good stock for Taxodium, and is said to be so for the Dammara Pine, and for the Deodar Cedar. Cedrus atlantica forms a good stock for the Deodar.

The weeping forms of Larch are best increased by inarching in the open ground on the common Larch (Larix europæa). For true Pines, use Pinus sylvestris, P. Strobus, P. excelsa, or Abies pectinata. In all cases seedlings make the best stocks. With Pines, a caution is necessary, for if potted in small pots for the purpose of inside grafting, the roots often become cramped and assume a corkscrew form, which always stunts the trees in their after development. It is advisable to pot only those seedlings as stocks which possess short and fibrous roots, and not to twist any of these roots (the more easily to get them into the pots), and thus initiate the "corkscrew" twist.

This potting-up of the various stocks should be done in autumn, and placed in cold frames. In March, take these stocks, which will have become established by this time, and select scions for them. These scions should consist of "leaders" in the Abietineæ and Araucaria, and strong laterals in Cupressineæ and Taxus. Various methods of grafting may be adopted. Tongue-grafting is a good general practice; but crown, saddle, and splice-grafting may also be practised with success. Terminal grafting is, perhaps, the best method in Pinus, and, in fact, in Abietineæ generally. It is said that terminal grafting of herbaceous shoots may be successfully performed in a close case in spring. Having adapted the scion to the stock in one or other of the above ways, bind with Raffia, and smear the union with "clay-paste." Then place them under the stage in a warm pit for a couple of days; at the end of this time examine the union again, and, if necessary, add more clay, and plunge them in fibre in a close pit (temperature 70° F.). Water very sparingly, and occasionally damp overhead with a fine-rosed can, and shade from sun's rays. At the end of three weeks or a month the union should be complete. Take them out and gradually harden them off, and finally plant them out in the "nursery," where staking, watering, &c., must receive every attention.

Pseudo-larix Kæmpfera is best propagated by grafting scions on moderately thick pieces of its own root, well furnished with fibres. This is a method which deserves more general practice. Ginkgo biloba is diœcious, and grafting serves to unite the two sexes on one tree. Seedlings, or cuttings, of the type (G. biloba) form suitable stocks. Cleft-grafting in March in the open, or veneer-grafting in August under glass, are both equally successful.

Cuttings.

Generally speaking, these should be selected from laterals, when the sap is in full motion (August or early September). They should consist of last year's branchlets, 4 to 6 inches in length, with a "heel." Place them in shallow boxes, or beds of sandy soil, under a north wall, or in a cold frame, and shade. Better still, and always with the more tender species, place them in pots and plunge in bottom-heat of 70° F. In the latter case, with the hardy species, as soon as roots show, harden off and plant out in cold frame. Their after-treatment is the same as that of seedlings. In Retinospora (Cupressus), Araucaria, and Agathis, the main leader must be taken. With the last two the leader may be "ringed" and "mossed" (like Dracæna), and afterwards removed, but I question if this be really advantageous, for I once saw one treated in this way and stood in a temperature of 65° F. for eighteen months, and then it had only "callused." Cutting them off and plunging in brisk heat is, I think, preferable. Of course, the Chili Pine requires cool treatment. I know of one which was rooted in the open (true, it was three years in rooting), but it is now making a nice plant (4 feet high). After the leader has been removed, numerous lateral outgrowths form, and these when large enough make good cuttings. Araucaria Cunninghami has been raised from root-cuttings, and I think this might prove a very remunerative method of propagation. Roots two or three inches long, and half to three-quarters of an inch thick, placed in bottom heat of 65° to 70° F., root in six to eight weeks.

Layering.

This is easily performed by bending, slitting, and pegging down a desired shoot. It answers very well for Taxus and Cupressus. *E. H. Wilson.*

THE FERNERY.

CHOICE ADIANTUMS.

From among the great number of beautiful species, it is difficult to make a limited selection, seeing that all are more or less of merit when well cultivated, and the modern mode of treatment certainly brings out the characteristics of the plants to much advantage. In place of peat as a potting-soil, heavy shading on the houses, and much moisture, nearly all the species will be found to succeed better if potted in a compost consisting largely of good fibrous loam, leaf-mould that has been well cleansed from worms, &c.; some well-dried stable-manure (I like to get it free from straw, &c., and dry it on the hotwater-pipes), some sharp sand, and good drainage. In such a compost there are few Adiantums which will not succeed. I should add, that the compost should be used in a rough state, having a great objection to the use of a sieve, as it takes away the best portion of the compost.

In potting Adiantums, care should be taken that the roots are not crowded up together. Where the roots are much matted together the lower portion may be cut away, for it is from the surface that the new and most vital roots are produced. I do not like to disturb them while the plants are dormant, but after they have started into active growth, at which period they take hold of the new soil quickly. Many of those with spreading rhizomes may be divided according to the number or size of plants required; if only a small portion of the outside rhizomes are taken off with care, young healthy plants may be established which will soon overtake the original, especially in the size of the fronds.

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* Extracts from a paper read before the Mutual Improvement Society of the Royal Gardens, Kew, by Mr. E. H. Wilson. The Hooker Prize was awarded to this essay.

After re-potting or dividing, they require a little shading and a fairly moist atmosphere, but water should be afforded very sparingly at the roots until they have made a good start. After the plants are well established, and the pots filled with roots, most of the Adiantums will take up a good deal of moisture. While over-watering is one of the greatest evils in Fern culture, the other extreme is also fatal. With attention to watering, most of the Adiantums may be grown fully exposed to the sun, and they will then make fronds of great substance; besides which, in many varieties the young fronds will have a bright rosy tint, which is quite lost under heavy shading. There are some which, under any treatment, will retain the deep green, the varieties of the Capillus-veneris type being examples of this; and I find those which never show any colour in the young fronds like a little more shade than those with the rosy-tinted fronds.

In making a selection, I hardly need say that A. Farleyense should always be included; the variety alcicorne, which has deeply-cut, irregular pinnules, though not an improvement on the type, is an interesting form. I can find no record of its origin, but I believe Messrs. R. Smith & Co., of Worcester, were the first to have it, and this must be upwards of fifteen years ago. A. curvatum is a very distinct and beautiful species, with ample, spreading fronds of a rich deep green, forming a nice contrast to those with the bright tints. It is a native of Central America, and requires stove treatment; it is one of those which require shading from the direct rays of the sun, but will not succeed under the shade of other plants. A. trapeziforme is a more vigorous-growing species, and may be grown into a large specimen; this does not show any colour in the fronds, but will thrive well in a sunny position. A. Lemonianum is a very distinct species, with ample, drooping fronds; the large pinnules have long, slender stipes. A. Seemani somewhat resembles the above, but it does not make such large fronds, and is of a deep green; they both require stove treatment and some care, in order to succeed well with them. A. cardiochlæna (polyphyllum): this is another which makes a fine specimen, the fronds are of a pale soft green, with a greyish shade, and when exposed to the sun the young fronds have a beautiful mauve tint. It is more suited for larger specimens, as it does not develop to its full beauty until it gets into a 6 or 8-inch pot, when it will grow from 2 to 3 feet high. A. macrophyllum: of those with bright-tinted fronds this is the best known, and as it is readily raised from spores it is grown extensively for market from tiny plants in thumb pots to large specimens, it is equally beautiful. It requires stove treatment, and unless well exposed to the light and sun is very tender; under any circumstances it cannot be recommended for winter use, but during the summer it will stand fairly well unless exposed to a dry atmosphere. A. macrophyllum bipinnatum: this has tallish fronds, and the lower portion bipinnate. I have never known this to be raised from spores, though what appear to be fertile fronds are plentiful; it may be increased by divisions. A. fovearum: the young fronds of this species have a bright, almost crimson tint, changing to a pale soft green. This may be raised from spores, but is rather a delicate Fern; it somewhat resembles the beautiful A. tetraphyllum gracile, which I am afraid is now nearly extinct in this country. A. tenerum and A. scutum: two useful Ferns, differ in that the first named has fronds which, when young, are of a crimson tint, while in the latter they are of a pale hue; when much exposed they may have a bronzy-brown tint. A. Lathomi has more drooping fronds, of a soft pale green. A. Mariesii is one of the best varieties of Capillus-veneris, the rich, deep green fronds stand erect on stiff, almost black stipes. A. imbricatum is also worthy of note, having drooping fronds, with large, deeply-cut pinnules. I must leave out the numerous varieties of the cuneatum type; also many others which are equally worthy of culture. I could from memory extend these notes to include upwards of 100 species and varieties, all of which have some merit, but even if space would admit there are not many who could find room for such a large number of one genus. *H. A.*

NEW INVENTION.

CAUSLEY'S FOLDING PROTECTORS.

THIS folding protector, which has just been patented and put on the market by Mr. C. Causley, 25, Downs Park Road, West Hackney, London, seems to be an article of much ingenuity and completeness for the protection of seeds and plants in their early stage of growth. One important feature it possesses is that, when not in use, it can be folded into a space of 7 inches in thickness, and packed away in a small compass, a matter of great advantage for carriage to a distance, or for export. In this frame or protector there are several features, which are shown by accompanying diagram (fig. 97), viz., ventilation, which can be adjusted at will by means of two ventilators in the top of each frame, giving perfect control over the ventilation. The method of affording water is quite novel, and it is effected by simply pouring water from an ordinary watering-pot into a receptacle fitted into the centre of the top of the frame; this receptacle, when full, throws the water in a fine shower to the full extent of the space under the frame, and as it empties gradually affords water to the centre, thus water is applied to the whole space covered by the frame. In fixing the glass no putty is used in any part, the panes of glass slipping into strong zinc frames, so that if broken they can be easily replaced.

Each frame is complete in itself. If the ends are removed a number of frames can be linked together, so as to form a continuous row, an end being inserted at each extremity, thus a long row of plants, such as early Peas, Tomatos, Strawberry-plants, &c., may be protected practically by one protector, affording free ventilation the whole length; or an end can be inserted at any desired part, dividing the row. Wire screens are fitted to each side of the frames to protect the glass, and when the frames get too hot, the panes of glass can be removed from the zinc frames, the wire screens being left to protect the young plants from injury. Growth in these protectors is very rapid, owing to a great degree of warmth generated in the frames, and the moisture arising from the earth.

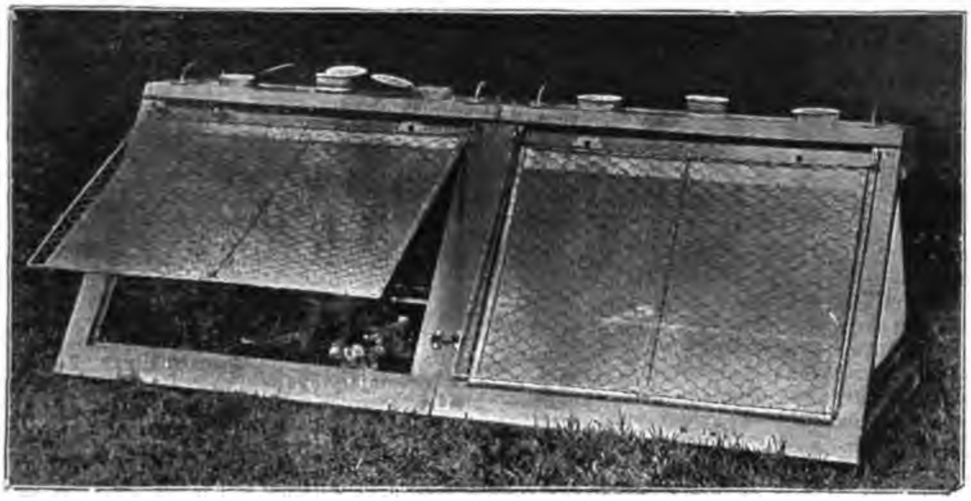

FIG. 97.—CAUSLEY'S FOLDING PROTECTORS FOR SEEDS AND PLANTS.

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

THE plants are making rapid progress. In some few instances the leaves may show a deficiency of chlorophyll or colouring matter. This is due to one of three causes, the most likely one being an excess of water at the roots, which causes a check to growth. Chrysanthemums are moisture-loving plants, especially during the summer, when the pots are full of roots, and growth is free and vigorous; but in the spring, before these conditions are attained, the plants may be easily injured by an excess of moisture at the roots. Cold draughts, when the plants are first placed in the frames, may also cause the foliage to become pale.

Some varieties are more delicate than others, and continue pale in colour throughout their growth. The ingredients of the soil may have an effect in the same direction, especially if lime be present in excess. In any case there is a remedy. Less water at the roots will be the best corrective for the cause first named. Greater care in ventilating the frames is an obvious remedy for draughts of cold air.

If an addition of charcoal and wood-ashes be made to the compost, it will help to make the compost more suitable in the case of heavy loam. The use of sulphate of iron is a ready means of restoring colour to the leaves. Dissolve half an ounce of the substance in two gallons of water, and give an application once each week.

Continue to repot the plants as they require more root-room. From 3½-inch pots, plants should be removed to pots 5½ inches in diameter. The compost should consist of three parts fibrous-loam, one part of horse-manure in a half decayed condition; and a quantity of wood-ashes, sand, and charcoal, may be added according to the character of the loam employed. To 1 bushel of the prepared compost add 2 lb. of Thomson's vine and plant manure, or other good fertiliser. Drain the pots with care, and pot firmly. Place the plants for the present in a cold frame, facing south. A thick bed of coal-ashes will keep the base of the pots from becoming too damp, and prevent the ingress of worms.

After potting the plants keep the frame rather closer for a few days, until new growth has commenced. Keep a sharp look-out for insect pests, of which green and black-fly are the worst; dustings of tobacco-powder will rid the plants of these. *E. Molyneux.*

SCALE INSECTS.

THE Orthezia is one of, if not the most resistent of all scale-bugs towards insecticides. An insecticide that will kill Orthezia can be almost guaranteed against any scale pest. It is remarkable that the half-grown insects will often survive treatment that has successfully destroyed the younger and older individuals.

In the case of isolated trees attacked by this pest, the gas treatment is really the most effective and complete. This consists in covering the tree with a tent or sheet of some closely-woven material, beneath which hydrocyanic-acid gas is generated. The deadly gas will penetrate to every part of the tree and reach every single insect. I have recently ascertained by experiment that an extra strength of the gas with a shorter exposure (than usually prescribed) is the most certainly fatal to the insects, and the least injurious to the plants. The gas treatment, however, though really very simple, requires considerable care in application, and is subject to certain dangers. It cannot therefore be recommended for general use without previous demonstration by a trained operator.

Spraying is the next best measure. But however thoroughly this work may be done, a certain proportion of the insects is bound to escape, and the process must be repeated at intervals until the pest has finally disappeared. I have found that mixtures, of which soap is the principal component, are more efficacious against Orthezia than any other form of insecticide. Besides killing the insect, the soapy-matter blocks the aperture of the ovisac, and so prevents the emergence of the young larvæ. Kerosine-soap emulsion is a useful and inexpensive mixture, but requires careful preparation. The formula is:—Kerosine, 2 gallons, common soap, ½ lb.; water, 1 gallon.

Dissolve the soap in water heated to boiling. Add the kerosine to the hot mixture, and churn till it forms a thick cream on cooling. The churning is the most important part of the process. If this is not done thoroughly, the oil separates out on cooling, and will not then mix with water. A properly compounded emulsion may be subsequently diluted to any extent. The churning may be effected either by stirring vigorously with a bunch of twigs, or the liquid may be repeatedly drawn up and expelled through a garden syringe. To test the mixture, put a drop on to a piece of glass. If it adheres without separating into oil globules, the process is complete. For application, dilute with nine or ten times the bulk of water. Kerosine emulsion should not be applied during sunshine, or serious injury to the plants may result. *Circular, Royal Botanic Garden, Ceylon.*

CAMELLIAS.

"R. C." (see p. 236) will find that the best time to repot Camellias is immediately the plants have flowered, and before the trees commence to grow. Small trees require to be repotted about once in three years, and the larger specimens only when the soil has become impoverished, or soddened by careless watering. When the latter is the case, the pots should be broken, as the plants drawn from them are apt to be pulled from the roots. Do not give them too large a shift; 1½ inch will be sufficient room between the ball and the pot. Pick with a pointed stick all the old soil without damaging the roots; then place some hollow crocks at the bottom of the pot, covering this with a layer of small broken brick and pieces of turf, which will prevent the soil from being washed into the drainage. In potting, use a compost of three parts fibrous peat, one part loamy soil, and sufficient broken charcoal and silver-sand to keep the whole porous. This should be added gradually round the ball, and made firm with a potting-stick, finishing off by leaving the surface 2 inches below the rim of the pot. Pruning is essential to keep the plants in a good shape, and to obtain strong growths and flowering buds. The shoots should be cut back to about six leaves, or fewer, according to the strength of the plants, and as soon as they have finished flowering. Upright-growing varieties, when young, should have the shoots drawn down with string, fastened to sticks wired across the pot. This will cause the back buds to push, and form growths near the stem. If the surface-soil becomes stagnant, it should be removed, and a top-dressing of peat and silver-sand mixed with either Standen's manure, or bone-meal, will be found beneficial. After potting, and when the plants are commencing to grow, raise the temperature of the house from 65° to 70°, and keep a humid atmosphere by syringing between the pots and overhead with tepid soft-water. When growth is completed, admit gradually more air to the house, and when the plants are sufficiently hardened-off, place them outside on a cool border, where they will be shaded from the sun. Any trees too large for pot-culture may be planted out in a border or bed; but of the many varieties we grow here, I have only found four that were not suitable for this purpose, viz., Reticulata, Bealei rosea, Mrs. Abbey Wilder, and Eximia. These varieties, if planted against a back-wall in the large conservatory and kept tied in, succeed well. Trees that produce imbricated flowers, are most favoured. These are not so stiff and formal, and as a rule the trees are of better habit. When limited to space, the following selection of varieties will be found a good one:—C. fimbriata alba, white; Sacco-i-novæ, pink; Leeana superba, salmon-red; Holfordiana anemone, flowered pink; Reine des Beautés, delicate rose; Chandleri, red; imbricata, red and white; Madame Lebois, bright rose; Leon Lequay, rich crimson; Reine des Fleurs, vermilion-red; Queen of Roses, delicate rose; Lady Hume's blush, flesh-colour; Princess Bacchicocchi, rich velvety-carmine; and Donckelaari, semi-double rich crimson. *A. Chapman, Westonbirt.*

BELGIUM.

L'HORTICULTURE INTERNATIONALE.

IN the houses, the Orchids are now beginning to flower abundantly. I lately noted among them Oncidium sarcodes, with petals and lip very much spotted; Miltonia vexillaria, with two inflorescences from one bulb, one with large handsome flowers of a deep rosy-purple tint, the other with insignificant blossoms. There are many good varieties of Cattleya Mendeli and Cymbidium eburneum; masses of Vanda tricolor and suavis are opening their fragrant flowers, and there is a fine V. gigantea with two splendid floral stems. One house is entirely filled with Cypripedium Lawrenceanum, with fine and well-coloured flowers; another with C. bellatulum coming into bloom; one curious variety bore many pale rose-coloured spots on the blossom. Odontoglossum Wilckeanum and O. luteo-purpureum are very fine; among the former are the varieties O. picturatum, O. chrysanthum, O. flexeolum, and O. pallens; in the latter group are O. nigrum, O. tigrinum, O. formosum exquisitum, O. regale, O. superbum, O. splendens, O. nigrescens, O. spectrum, and O. conspicuum. There is a good plant of O. mulus superbum; one of O. Rossii majus rubescens, bright lilac-rose, and with the petals and lip of elegant form, the edges waved, and fluted, and veined with darker rose; O. cirrosum is coming freely into flower. Some examples of Warscewiczella are remarkable for the deep colour of the segments and lip. *Correspondent.*

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD,
Wrotham Park, Barnet.

Peas Growing in Pots.—Peas standing in pots need careful applications of water, and tolerably free ventilation in mild weather. Many varieties of Peas may be successfully grown in pots, but the plants must not be hard forced, the proper night temperature ranging from 50° to 55°, and that of the day 10° to 15° higher, with the higher figure in bright weather. The plants should stand where the fullest sun reaches them. When the plants are in bloom, do not syringe so freely as at other times, but as soon as the pods are formed, dew the plants over twice daily in bright sunny weather, and let the temperature run up by partly or quite closing the ventilators early in the afternoon, admitting air at a later hour, which need not be excluded if the weather is mild. The soil must not be allowed to get dry, more especially when the plants are in bloom; and to assist the pods to fill, afford soot-water and liquid-manure alternately with tepid clear water. Plants growing in frames should have the lights drawn off in bright weather; this will be better than tilting the lights at the back and front.

Potatos.—The frames should be freely ventilated on favourable occasions by day, and water afforded, not wetting the tops. Let the frames be protected against cold by means of mats laid on at 6 A.M., and uncover at 8 A.M., or earlier if it be warm. Before earthing-up the stems, afford water, if such be needed. Potatos growing in pots should not be kept very moist, and when the tubers are grown of suitable size for use, the pots may be stood in any out-of-the-way place, say under the stages of the house, till required.

Asparagus.—If young plants are not yet planted, no time should be lost in getting the operation finished. The most suitable time to plant Asparagus is when the young growth appears. Let the plants be placed in trenches just deep enough to allow the crown to be covered with an inch of soil, and broad enough to allow the roots to be spread out without crowding. Seed, if not already sown, should be got into the ground. The produce of beds in bearing should be gathered daily, and in order to avert injury by frost, covering materials should be laid handy to put on when needed.

Globe Artichokes.—The suckers may now be dug up, and fresh beds made, by planting clumps of three or five in well-prepared ground. With suitable attention to watering and manuring, these plants will afford good usable heads in the autumn.

Onions for Pickling.—Sow seed broadcast on firm, poor soil; as if sown in the usual manner on good land the bulbs grow too large.

FRUITS UNDER GLASS.

By W. STRUGNELL, Gardener to the Right Hon. W. H. LONG,
Rood Ashton, Trowbridge.

Pine-apples.—Affording water and syringing the plants will demand frequent attention now that they are in active growth, and the sun is getting more powerful daily. Closing-time, however, is when syringing has the most beneficial effect; but in the morning the damping of the walls and floor is sufficient, this being repeated during the day more or less often in accordance with the weather. Ventilation should be afforded early in the day if it be bright, thus preventing an undue rise of the internal warmth, and imparting vigour and sturdiness to the plants.

Fruiting Plants, providing the roots have filled the pots, are much benefited by the application of weak liquid manure. Suckers and recently-potted plants should, however, receive only clear water. If the plunging material in any of the divisions needs removal or additional tan or leaves, choose a dull day at this season for doing the work, placing the plants meanwhile close together in one part of the house or pit, or in an adjacent house or heated pit. Great care must be taken after making these additions, that the heat is not so great as to burn the roots, or cause plants to start to fruit that are not of the proper age. At the first, it is safer not to plunge the pots to their full depth, and should the test sticks or the plunging thermometer show a heat of more than 90° in the fruiting-house or of 80° to 82° in the succession and sucker-pits, loosen the pots in the bed, or lift them and put a couple of handfuls of tan, &c., at the bottom of the hole, returning the plant to it, and finally plunging it when the heat has receded to a safe point. If a bed becomes very hot, besides lifting the pots, bore holes all over with a stout stake, in order to allow the heat to escape. In replacing, do not permit crowding, but let each plant have sufficient space for half a year's growth; keep all plants pretty close to the glass, and be sure that there is a clear run for drip on the rafters, or much harm will be done by the soddening of the soil in the pots. Small zinc troughs 1 inch wide are very useful in dripping houses in carrying off the condensing moisture. Take suckers whenever any good strong ones can be obtained, but do not let more than two develop on any plant. Close the house in the afternoon as early as is safe, syringing freely among the plants on bright days, but omitting this when the weather is cold or cloudy. Avoid the overhead damping of plants in bloom, or those on which fruit has changed colour. If more fruits are ripening than can be consumed, the plants with ripe fruits may be removed to a cool room. The heat in the pipes must be regulated in accordance with the weather, keeping it low during sunshine, and allowing an increase of warmth in time to meet the declining solar warmth before it recedes too much.

Early Vinery.—Where stoning of the berries is passed, progress will be rapid, demanding close attention to the application of water to the inside borders, more especially if these are shallow or narrow, and the loam they consist of is of a light nature. Once a month may suffice for borders made of heavy soil, when others may need water once a week. This is a point of importance, and can only be determined by the gardener. Red-spider, which often puts in an appearance in vineries at this season, can be kept in check by painting the pipes with sublimated sulphur, which is to be preferred to the flowers-of-sulphur because more effectual and safer. Syringing of the Vines, if practised, should be discontinued as soon as colouring commences, and a "chink" of air at night assists materially in giving a perfect finish. If red-spider is already established, sponging of the foliage is the best remedy; but prevention is the better course, and can be obtained by judicious ventilation and watering, and the use of sulphur on the hot-water pipes.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Hardy Ferns.—The majority of these plants revel when planted on a rockery, provided the right position and the proper sort of soil be used. Where suitable stone is not procurable, burrs from the brick-kilns form excellent substitutes, and pockets can be readily formed from them. The best position for a fernery is one with a northern aspect, or in a shady dell, with plenty of subdued light. The Scolopendriums and a few others will grow in the deep shade of trees and rocks. Ferns may be cultivated on level ground and on banks, but the beautiful forms do not show themselves to such perfection as when seen against some rugged rockwork; neither can they be treated separately in such positions as regards the amount of moisture and the kind of soil that suits them.

Soils and other Materials.—Peat, loam, leaf-mould, broken sandstone, and limestone, and soft bricks, are the chief requirements of most Ferns.

Planting and Arrangement.—In arranging the plants in a fernery it is advisable to mix some of the evergreen varieties with the deciduous ones, which will take off the bareness in the winter common to ferneries, when these are planted solely with the latter. Among evergreen species are Asplenium Trichomanes, A. Adiantum nigrum, A. angustifolium, A. fontanum, A. germanicum, A. lanceolatum, A. Ruta muraria (wall-rue or spleen-wort), which all require small nooks in the higher and drier portion of the rock-work. Polypodium vulgare and its distinct varieties, crenatum, cambricum, semilacerum, omnilacerum, pulcherrimum, grandiceps, and cristatum, form fine masses when planted in stiff retentive loam. Blechnum spicant (Hard Fern) is in many districts not easy to establish, but where it succeeds it is a noble Fern; Polystichum aculeatum and P. angulare are by far the easiest and handsomest to cultivate, growing from spores freely, and soon forming graceful specimens. P. angulare grandiceps, proliferum, and Wollastoni, and numerous other varieties of these, are distinct and beautiful. Scolopendrium vulgare, and its many varieties or sports, are refreshing and cool to look upon. They prefer a strong loam, but they will grow well in brashy rock and sandstone *débris* provided moisture is not lacking. Lastræa filix-mas, L. cristata, L. dilatata and varieties, are almost evergreen, and may be planted in the more exposed positions of the rockery. Among the deciduous Ferns, Athyrium filix-fœmina (the Lady Fern) is the most fragile, and should be planted in a shady, sheltered position, and where there is much dampness. The numberless varieties of these are very distinct, both in the form of the fronds and in the dark and light green colour of the stems. Cystopteris fragilis, C. f. Dickiena, C. f. bulbifera, and C. f. montana, when once planted, spread among the crevices of the rockery; Osmunda regalis, O. r. cristata, O. cinnamomea, O. interrupta, O. spectabilis, should be planted at the base of the rockery where the conditions are very moist. The same site suiting Onoclea sensibilis, a fern that delights in the shade must have plenty of room for its rhizomes to spread. Polystichum Lonchitis and P. L. munitum, a Californian species, are perfectly hardy and very distinct; Cyrtomium falcatum and C. f. Fortunei are both hardy in these gardens, planted in the driest position in the rockery, and soon grow into large specimens.

Treatment.—Ferns that have been established some years can be kept in health by annual top-dressings of loam, leaf-mould, and peat afforded before the fronds throw up, and after a heavy rainfall. In very dry places or in soils that part with their moisture quickly, a few flat pieces of stone placed on the surface will prevent a good deal of evaporation of moisture.

The Rock Garden.—Rockeries that have been formed near to the edges of ornamental water, or in deep ravines, are the more effective if planted with shrubs of as bold a type as the rockery will permit, such as flowering Berberis, Spiræas, clumps of green-leaved and variegated Ivies, Cotoneasters, Roses, Daphnes, Ericas, Rubus, &c., also Yuccas, Ferns, giant Grasses, Bamboos, Megaseas, and other plants that have striking outlines. These, in time, will be apt to overgrow the space allotted to them, and should then be carefully cut back during spring; but preserving in them a rugged outline, so as to secure a natural appearance.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

The Strawberry.—The time has arrived when the beds should be afforded a mulch of long stable litter or other not readily decaying materials, for the purpose of keeping the fruits clean. Before the litter is placed round the plants, the ground should be hoed, and weeds removed by hand from among the crowns. If stable-litter be used, it should be the straw only; this must be brought close up around the plants, and spread over the alleys as well. By applying the mulching now, the manurial properties will be washed down to the roots by the rain, and the straw made sweet and clean before the fruits appear. If no rain should fall soon afterwards, water ought to be applied by hand or with a hose, before the sun and air have dissipated the ammonia, &c. Manure-water may also be poured in the alleys so as to strengthen the growth, especially when the beds are two or three years old. If stable litter be not obtainable, dry bracken may be substituted, and for keeping the fruits clean it answers the purpose very well. At Dropmore, bracken only is used, a thin mulch of horse-droppings with a slight mixture of peat-litter as brought from the stables, and turned over and broken up finely, being afforded the beds early in the spring. Owing to the unseasonable weather, but few flower-trusses have pushed up on the earliest varieties, and an early season can scarcely be looked for.

Planting-out forced Strawberry Plants.—The later batches of plants are excellent for planting-out purposes, producing heavy crops the next year, and after this date they require but little hardening off before being planted. For producing a few dishes of fruits in autumn, too, the variety Vicomtesse H. de Thury is often very valuable. When planting, the root-mass should be reduced in size by shaking away some of the outer soil, and the soil in the pots should be in a moderately moist condition. Plant at 2 feet apart each way in ground that has been manured and deeply dug, and make the land firm by trampling around the plants.

General Remarks.—The weather, at the time of writing, is cold and overcast, and not favourable to the blossoming of fruits of any sort, rendering the use of coverings still advisable.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Odontoglossum crispum.—Where many plants are grown, some of them will be in a condition rendering repotting or surfacing necessary before the weather becomes warm, summer warmth having an injurious action to the plants which are not re-established. Plants from which the flower-spikes have recently been removed, should be afforded only as much water as will avert the shrivelling of the pseudo-bulbs, otherwise there will be premature growth.

Anguloas.—These species of tropical Orchids, sometimes called Cradle Orchids from the swinging movement a slight touch imparts to the flower, are not favourites with Orchid-cultivators, though when well grown and arranged with other species of strong growth they are showy plants. The flower-scapes are now appearing at the base of the young growths, and these will shortly be followed by a batch of new roots. In order that these may afford nutriment to the plant, fresh materials should now be applied to the surface after picking out as much as possible of the old. The materials should consist of turfy-peat, loam, and sphagnum-moss in about equal proportions, sprinkling in as the work of filling proceeds some very small crocks. Any plant which has become too large for the pot, &c., should be carefully turned out at this season, a little of the surface-soil removed and placed in a larger pot, providing there are no old back bulbs to remove, for when this is possible, probably the plant will only require a pot of the same diameter as before. Let the space around the ball be filled in with crocks to within 2½ inches of the rim, cover these with rough material, and finish off with the mixed compost. Anguloas should be kept in an intermediate house, and be very sparingly afforded water till the roots grow. Later in the season if the undersides of the leaves are syringed on favourable occasions, red-spider will not increase in number. Lycaste plana Barringtoniæ, L. mesochlæna, L. Cobbiana, L. costata, and the wonderful green-flowered L. Mooreana, thrive under like conditions and treatment.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Salvias.—Of the varieties of these plants which are suitable for pot-culture, S. splendens, S. splendens var. Bruanti, S. coccinea, S. Bethelli, and S. patens, are those commonly grown, and of these again the first and last-named are probably the most useful and effective. S. splendens is extremely floriferous, producing dense spikes of the most vivid scarlet flowers, whilst S. patens rivals the alpine Gentians in possessing flowers of the deepest shade of blue. Salvias are generally propagated from cuttings, and young shoots inserted now in 4½-inch pots filled with sandy soil, and placed in a warm house, or plunged in a hot-bed, will root readily, and may then be potted off singly into small pots, and placed in a pit with an intermediate temperature for a few days to become established, afterwards being gradually hardened off and placed in a cold pit. When well-rooted they should be shifted into 5-inch or 6-inch pots. Salvia splendens is subject to the attacks of red-spider, and should therefore be freely syringed during dry weather. When all danger of frost is passed Salvias may be stood in the open air, on a bed of coal-ashes.

Miscellaneous.—Place a few plants of Euphorbia (Poinsettia) pulcherrima in the stove to provide cuttings for an early batch of plants, but, as later-struck plants are best for the main supply, keep the old plants at rest for two or three weeks longer. Continue to put in cuttings of Begonia Gloire de Sceaux and Gloire de Lorraine for late flowering, also other winter-blooming species and varieties. Choice varieties of tuberous-rooted Begonias may also be increased by cuttings when the young shoots have attained the length of 4 or 5 inches. Begonia socotrana should be kept quite dry at the root while resting, and may be placed in an intermediate temperature. Ipomœas and other climbing annuals should be prevented from becoming entangled by timely attention to staking them, and by staging them wide apart. Small dead seedling Larch form a very suitable support for Ipomœa Quamoclit, or, failing this, a few sprays of Birch about 18 inches in length may be placed in each pot.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR MAY.

TUESDAY,	MAY 2	Royal Horticultural Society's Committees. Scottish Horticultural Society, Meeting.
THURSDAY,	MAY 4	—Linnean Society, Meeting.
FRIDAY,	MAY 5	Royal Botanic Society, Lecture National Auricula Society (Northern Division): Exhibition in Coal Exchange, Manchester.
TUESDAY,	MAY 9	Royal Horticultural Society of Ireland, Meeting.
FRIDAY,	MAY 12	—Royal Botanic Society, Lecture.
SATURDAY,	MAY 13	—Royal Botanic Society, Meeting.
TUESDAY,	MAY 16	Royal Horticultural Society's Committees. National Rose Society's Committee Meeting.
WEDNESDAY,	MAY 17	Imperial Russian Gardeners' Association: International Exhibition at St. Petersburgh (10 days).
FRIDAY,	MAY 19	Manchester Royal Botanical Society's Whitsuntide Exhibition, continuing until May 25. Royal Botanic Society, Lecture.
SATURDAY,	MAY 20	Cheltenham Horticultural Society's Exhibition (2 days).
MONDAY,	MAY 22	—Bank Holiday.
WEDNESDAY,	MAY 24	Linnean Society, Anniversary Meeting. Bath and West and Southern Counties Show at Exeter (5 days). York Florists' Exhibition of Tulips, &c.
FRIDAY,	MAY 26	—Royal Botanic Society, Lecture.
SATURDAY,	MAY 27	—Royal Botanic Society, Meeting.
WEDNESDAY,	MAY 31	Annual Exhibition of the Royal Horticultural Society, in the Gardens of the Inner Temple, London (3 days).

SALES FOR THE ENSUING WEEK.

WEDNESDAY,	MAY 3	Lilies, Greenhouse Plants, Begonias, Gladioli, &c., at Protheroe & Morris' Rooms.
FRIDAY,	MAY 5	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 16 to April 22, 1899. Height above sea-level 24 feet.

1899. April 16 to April 22.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	At 9 A.M. Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 16	N.N.W.	43·7	41·1	47·5	40·5	0·09	46·8	46·9	46·8	34·5
Mon. 17	N.E.	42·4	37·8	52·4	31·0	...	45·6	46·9	46·8	22·9
Tues. 18	N.W.	44·6	41·8	53·0	31·3	...	45·9	46·9	46·8	24·0
Wed. 19	W.S.W.	47·1	41·9	58·9	29·6	...	46·7	47·1	46·9	21·0
Thu. 20	W S.W.	50·2	45·0	59·1	32·5	0·19	48·1	47·6	46·9	24·3
Fri. 21	S.E.	42·5	41·0	45·8	42·0	0·20	49·9	48·1	46·9	41·2
Sat. 22	N.N.E.	43·5	39·2	55·0	34·0	...	46·9	47·9	47·1	25·0
Means...	...	44·9	41·8	53·1	34·4	Tot. 0·48	47·1	47·3	46·9	27·6

Remarks.—The week has been characterised by dull weather, and very cold mornings.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—51 5°.

Actual Temperatures :—

London.—*April* 26 (12 P.M.): Max. 56°; Min. 45°.

Provinces.—*April* 26 (6 P.M.): Max. 54°, Salisbury; Min. 47°, Tynemouth.

Apple-tree Roots and Stocks. Few subjects connected with hardy fruits are of more interest and importance than that of the influence of stocks, and the study of the root-system of the trees. There is much more to be learnt in this matter, and it is well worth a thorough investigation, though many difficulties are in the way of a satisfactory inquiry. In the first place, it is almost impossible to secure a number of trees or stocks in a uniform and comparable condition. Even in dealing with one kind of stock raised either from seed or layers, there are always considerable visible differences in the vigour of stem and root growth, and internal variations may still more often occur which are not evident. It is rare that much time can be devoted in nurseries or gardens to the selection of stocks of equal strength. The weakest, or deformed, may be discarded; but amongst those retained, though healthy, and quite satisfactory for ordinary purposes, differences in the amount of roots or strength of stem equal to 100 per cent. can be commonly found on close examination.

Consequently, with the greatest care that can be adopted, some variations are always observable in the growth and behaviour of trees worked on the same stocks under similar conditions. How far such characters may prove constant, or merely temporary, experience in each case can only determine; for it is impossible, with our present knowledge, to state a rule that is equally applicable to all. Attempts have been frequently made to generalise on the influence of stocks, but as they are necessarily founded on incomplete evidence, they are repeatedly nullified by fresh observations.

About the year 1875 a collection of stocks for Apples was formed at Chiswick; they were obtained from the most reliable sources, were carefully compared, and the eighteen supposed distinct sorts were practically reduced to the following: — French Paradise (Pommier du Paradis), English Paradise, English Nonsuch, English Broad-leaved, Doucin, Pommier Franc (Free Stock, presumably a seedling), Dutch Paradise, and the Crab. The whole eighteen were, however, kept under their respective names, and all were grafted with Blenheim Orange. In the third year from grafting the trees showed flowers; and for four years, namely, from 1878 to 1882, the blossoms were counted, and the numbers recorded. Considerable differences were observed, but the disparity is quite as great between the results from the stocks that were considered identical as from those admitted to be distinct, though attention is not specially called to this point in the record. For instance, the French Paradise, as obtained from an English nursery, and Pommier du Paradis from a French establishment, were found to be identical and true to name, yet the tree on the former produced in the five years one hundred and ninety-two flowers, while that on the latter bore four hundred and sixty flowers. Again, two stocks obtained from old trees in the Chiswick Gardens, regarded as "identical, and probably the English Paradise," bore in the one case two hundred and thirty-five flowers, and in the other none at all in the whole period.

In a third case, two stocks received as Pommier du Paradis and English Paradise from the same source, were determined to be "identical and distinct from either the true French or English Paradise," yet the former only produced forty-six flowers, and the latter had one hundred and ten. The nearest approach to each other in flower results in the case of stocks bracketed as identical were afforded by the Pommier Doucin, and Doucin from different sources; the numbers being for the former five hundred and four, and for the latter three hundred and seven, still a material disparity. Very little fruit was produced during the period named, and the growth also did not afford any uniform indication of the stock effects, except that the strongest were the trees on the Crab and Free stocks. These trees have been examined many times, but no definite conclusions could be drawn from their subsequent behaviour.

At the present time an even more interesting series of facts may be noted at Chiswick in connection with this subject. About fifty varieties of Apples were worked on a dozen presumably distinct stocks, and in the first year it was thought marked differences were being developed; but further experience has brought out some strange results, for, in many instances, the trees are as nearly alike as it is possible for trees to be. Without going into full details, the following varieties are especially noteworthy, the trees being in bush or pyramidal form, and some are now of considerable size. A dozen good trees of Waltham Abbey Seedling on as many stocks show very little difference in growth. Bramley's Seedling, on seven stocks, are all materially alike, except one on the French Paradise, which is dwarfer, and more compact. All the others show the free, open, vigorous habit of the variety. Mère de Ménage on seven stocks are nearly exactly alike, and as far as appearance of the growth is concerned, no one could suppose there was any difference in the roots.

Twelve well-developed trees of Claygate Pearmain, or as many stocks, afford a remarkable instance, for they are as uniform as possible.

The same number of Lane's Prince Albert closely resemble each other, and all show the peculiar loose habit of the variety. Six Cox's Orange Pippin, and seven Yellow Ingestre, are examples of the same kind.

In the course of lifting many of these trees, Mr. S. T. Wright assures us that the differences in the roots were no more marked than in the growth; and the same observation applies to the quantity of the fruit, while the individual fruits are not affected in size, colour, or quality.

If the whole history of these trees were not known, it would be thought that some mistake had been made; but such an idea cannot be entertained here, for the original experiments were commenced under the superintendence of Mr. A. F. Barron, and every care has undoubtedly been taken to ensure accuracy. We know that considerable differences are visible in the various stocks at the beginning of their career, and it is evident that certain varieties can gradually overcome all these peculiarities, asserting their own characteristics, the influence extending to the root system. That some varieties of Apples possess a greater vitality than others a moderate experience in pruning, grafting, and budding will demonstrate if a close observation is kept. There is a greater power of forming fresh tissue, of healing wounds, and of effecting a perfect union with the stocks upon which they are worked. A good example of what is referred to here is afforded by Bramley's Seedling, which forms new tissue very rapidly, and it is for this reason that it has been recommended for grafting on beheaded trees in the process of restoring old orchards. It is surprising how large a surface becomes covered and "healed" by the new cell-growth from healthy scions of this Apple.

Another variety which possesses the same power in almost an equal degree, though a much less vigorous grower, is Potts' Seedling, and this also exerts a powerful influence upon the roots. Lord Grosvenor, Red Astrachan, Cockle's Pippin, Cox's Pomona, and Gascoigne's Scarlet Seedling, may be taken as similar examples, but many more could be named; and the power is not confined to the strongest growers either, for there are several which produce only slender wood but which are yet vitally strong.

Not only do such varieties assert their special characters to a great extent independently of the stock upon which they are growing, provided other conditions are on an equal basis, but they affect the root system of the stock both as regards mode of growth and texture. This applies more particularly to stocks that have been raised from layers. When we are dealing with seedling stocks, whatever they may be, the differences between themselves are very much greater, and the tap-root exerts an influence for a considerable time, even though it be shortened, and its downward tendency checked by artificial means. The root-systems of the two types of stocks are essentially different at starting, but even their characters are lost in time, and when "worked" with vigorous varieties. After handling hundreds of trees of various ages it would have been easy to select some on seedling stocks that might have been taken for layers, and *vice versâ*, so far as could have been judged by the proportion of fibrous roots and the direction of the main divisions. The whole subject, however, is full of interest, and there is ample room for investigation.

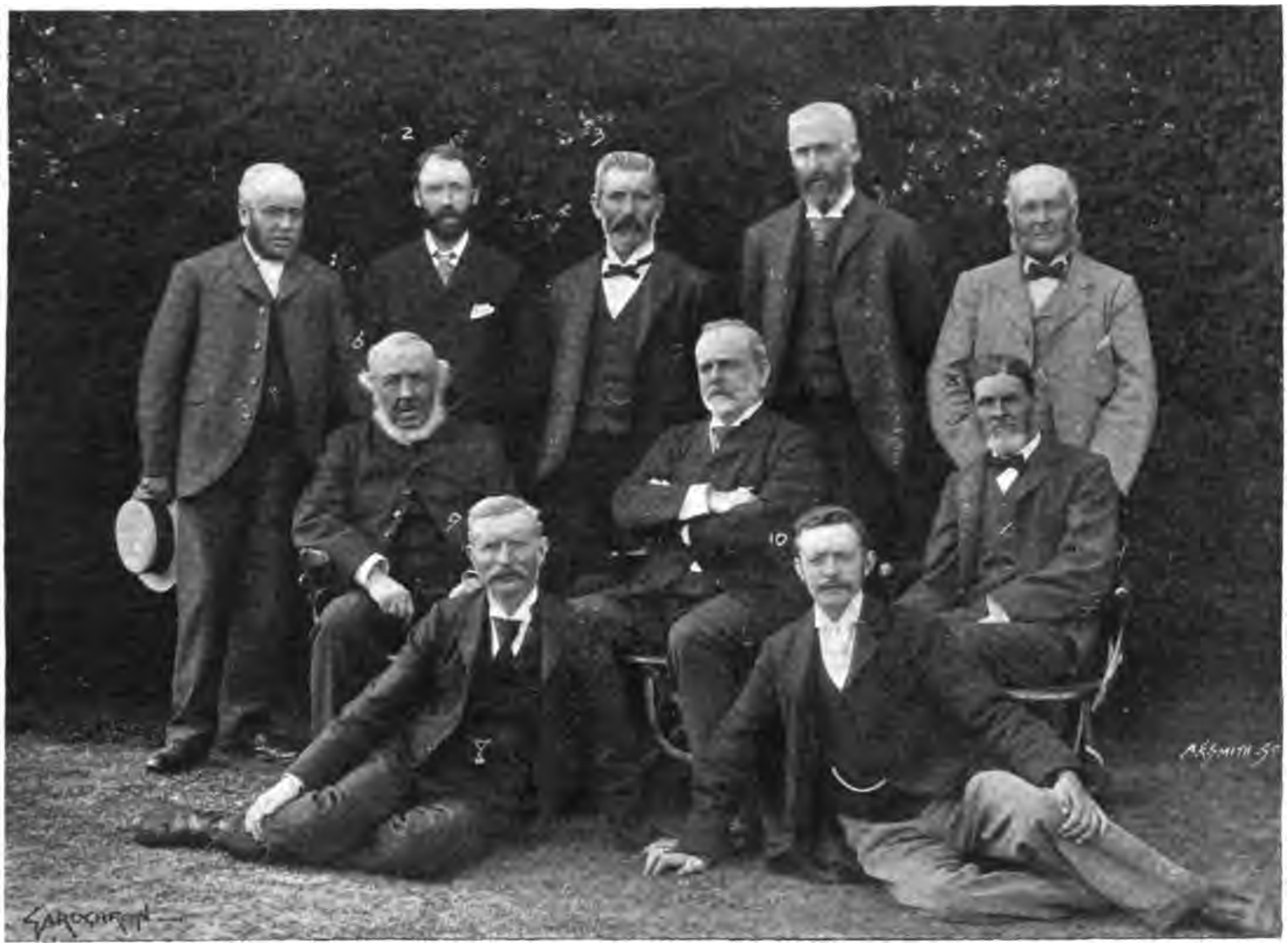

Fig. 98.—THE STAFF IN HER MAJESTY'S GARDENS AT WINDSOR, 1899.

1, W. Barker; 2, J. Brown; 3, T. Edwards; 4, J. Dunn; 5, J. Chinnell; 6, C. Marr; 7, Owen Thomas (*Head Gardener*) 8, G. Hampton; 9, J. Jack; 10, J. Green.

Foremen in the Royal Gardens, Windsor.—The particulars of the services of the foremen at Windsor furnish evidence of long garden service under one employer, which can scarcely be equalled by any other private garden establishment, and helps to demonstrate the comfortable conditions under which the work of Her Majesty's private gardens are conducted. Each foreman is well paid, well housed, and secure of a fair pension, if he lives to become too old for work. The nationalities of the foremen are fairly divided, six being English, three being Scotch, one being Irish, and one Welsh. Marr has held the position of kitchen-garden foreman for the long and uninterrupted period of fifty-two years, and is still in office at eighty years of age! George Hampton, foreman of the walks and plantations, has forty-seven years to his credit. John Chinnell, foreman over the flower-gardens, slopes, and pleasure-grounds, counts forty-two years' service. William Barker, foreman of Frogmore House Garden, entered the garden as a boy thirty-four years ago. Thomas Edwards, plant foreman and book-keeper, entered the service twenty-five years since. John Dunn, foreman of the fruit department under glass, counts sixteen years' service; and so does J. Jack, foreman in charge of the old Vine and private garden at Hampton Court. James Brown, foreman of the hardy fruit department, fifteen years; James Green, foreman of the Royal Lodge Garden, Windsor Great Park, seven years; J. Allen, having charge of the old Vine at Cumberland Lodge, thirty-three years; and J. Carruthers, having charge of the Royal Pavilion Grounds, Aldershot, seventeen years; the length of service of the eleven men counting 304 years, and an average for each of over twenty seven years. God save the Queen!

The Royal Horticultural Society's next meeting will be held on Tuesday, May 2, in the Drill Hall, Westminster, when a lecture on "The British and Swiss Alpine Floras," will be given by Mr. E. A. N. Arber, B.A., at 3 o'clock.

Linnean Society.—At the meeting to be held on Thursday, May 4, 1899, at 8 p.m., the following papers will be read :—1, "The Position of Anomalurus as indicated by its Myology," by Mr. F. G. PARSONS, F.R.C.S., F.L.S., &c. ; 2, "On Notheia anomala, Harv. et. Bail," by Miss ETHEL S. BARTON ; 3, "On Variation in the Desmidieæ," by G. S. WEST, B.A., A.R.C.S , &c.

ROYAL INSTITUTION OF GREAT BRITAIN.—An interesting course of two lectures on "Water-weeds," by Professor L. C. MIALL, F.R.S., will be delivered on Thursday, May 25, and Thursday, June 1.

SMALL WORMS IN POTS.—The Rev. HILDERIC FRIEND, Ocker Hill, Tipton, writes: "I should be glad if you could inform your readers that I shall be happy to receive and report on small worms found in pots, among flowers, plants, fruits, grass, manure, &c., especially if suspected of being the cause of injury. All helpful information should be sent, and specimens of injured material with living specimens of the worms."

SECRET COMMISSIONS.—The Prevention of Corruption Bill introduced in the House of Lords by the Lord Chief Justice, "may be shortly stated as an effort to check, by making them criminal, a large number of inequitable and illegal secret payments, all of which are dishonest, and tend to shake confidence between man and man, and to discourage honest trade and enterprise." The preamble is, in effect, a copy of the finding on the subject of a special committee appointed by the London Chamber of Commerce, on which twenty of the trade sections of the Chamber were represented. Sections 1 and 2 make the gift, offer, receipt, and solicitation of any corrupt payments offences. Corrupt payments are not defined by the Bill, but certain transactions are declared to be corrupt; and the reason why no attempt is made to define corruption is, "that the thing is so Protean, that to define it is almost impossible." Sections 3 to 8 inclusive contain declarations that certain specific transactions are corrupt unless the contrary be shown ; sections 3 and 4 deal with the common case of gifts to the agent by persons having dealings with his principal; and sections 5 and 6 deal with bribes given, not to the agent, but to his wife or child and others. Sections 7 and 8 deal with a different class of "unconscionable transactions," and seek to put an end to the practice of taking commissions for advice.

DR. A. W. CHAPMAN died at Apalachicola, Florida, on the evening of April 6. He was by far the oldest of the American botanists, having passed or being on the point of passing his ninetieth birthday, and, of course, he was the last survivor of the generation of TORREY, GRAY, ENGELMANN, &c. He is best known for his *Flora of the Southern States*, published originally in 1860, with the cooperation of Prof. EATON as regards the Ferns.

"SOWERBY'S ENGLISH BOTANY."—The proprietors of *Nature* are about to issue a special reprint of that well-known work. The third edition of *Sowerby's English Botany*, to be offered on the instalment system, which has recently become so popular. As in the former editions, all the illustrations will be coloured by hand.

BERLIN HORTICULTURAL EXHIBITION. — The Society for the Encouragement of Horticulture in Germany has arranged that a winter flower-show, inaugurated by them, shall be held during seven days in February, 1900, in the Zoological Gardens, Berlin. The programme, now ready (application to be made to 42, Invalidenstrasse), mentions eighteen sections, in all of which awards are offered for the various exhibits.

DOUBLE ARABIS.—The flowers of the Arabis shown by Messrs. VEITCH & SONS, at the last meeting of the Royal Horticultural Society, prove on examination to be more interesting than was apparent at a glance. The sepals were of the ordinary character, but there were no stamens. In their place were twelve petals, thus making the numerical symmetry complete (S. 4 P 4 An. 4 + An. 4). There was no pistil, but in its place another flower-bud (median prolification).

PRESENTATION. — Mr. H. HUMPHREYS, late head-gardener to A. SPICER, Esq., J.P., The Rookery, St. Mary Cray, was on Thursday, April 6, presented with a very handsome marble clock, towards the cost of which some sixty-three persons subscribed. At the base of the clock was a brass plate bearing the inscription, "Presented to Mr. H. HUMPHREYS by a few friends as a token of esteem, April 6, 1899."

—— Mr. W. WRIGHT, on leaving Ryecroft Nursery, Lewisham, where he had been foreman for eight years, was presented with a handsome marble timepiece by the rest of the employés of the firm, as a token of their esteem.

"THE ROMANCE OF WILD FLOWERS" is, we learn, the title of Mr. EDWARD STEP'S forthcoming work, this being the first volume of a proposed new series to be issued by Messrs. FREDERICK WARNE & Co., under the general title of "The Library of Natural History." The book will be very rich in illustrations reproduced from photographs taken by Mr. STEP and his daughter, as during the past twelve months, whenever anything of interest to illustrate the text was obtainable, the author (who had the opportunity of writing his book amid the surroundings of a Cornish seaside village) availed himself of it. In addition to these illustrations, there are to be upwards of a hundred of a minor character dispersed throughout the volume. Lovers of his two little books, *Wayside and Woodland Blossoms*, and they are numerous, will have a treat to look forward to.

ANNE PRATT'S "FLOWERING PLANTS OF GREAT BRITAIN," will be shortly re-issued in 1*s.* weekly parts. This new edition has been most carefully and sympathetically revised by Mr. EDWARD STEP, F.L.S., and will contain two more plates than the former issues, 315 in all. Practically, for lovers of wild flowers, PRATT'S book has been the authority among illustrated works, over 1,500 species being figured in the coloured plates. The text has been re-set in a larger type than the recent edition. The publishers, Messrs. FREDERICK WARNE & Co., inform us that there are to be thirty-six parts. As the book has now been out of print for some years, and was only obtainable in four volumes at a comparatively high price, this will be good news to lovers of botany, among whom this work requires no recommendation.

TEA ROSE LIBERTY.—According to *American Gardening*, never has Nature yielded to the painstaking hybridist and plant-raiser a more beautiful or more satisfying colour than that seen in the new hybrid Tea Rose Liberty. When we have got to the end of the heroics, we learn that the colour is rich liquid ruby. It was raised at Belfast in the nurseries of Messrs. DICKSON, from a grandchild of Mrs. W. J. Grant by Victor Hugo.

CUBA.—The Americans are turning their new possession to account. According to an advertisement in *American Gardening* we see that "absolutely free warranty deeds" are offered to Americans "in one of the choicest, most beautiful, and fertile spots on the most fertile island in the world." It appears that no English need apply; but the Grapes are not ripe enough for English taste.

FRUIT FROM THE CAPE.—The Union Royal Mail Steamship Company's vessel *Scot*, brought on her last trip 720 boxes of Grapes, 179 boxes of Pears: total, 899 boxes. Some of the Grapes arrived in good condition, although packed in cork and peat-dust, and realised good prices. A large number of boxes arrived in exceedingly bad condition, owing, it is stated, to being badly and insufficiently packed in peat-dust. The shippers in the Colony ran short of the usual wood-wool packing, and had to resort to cork and peat-dust. Forty boxes of Pears contained a hard culinary variety, and were carried in the ship's hold as ordinary cargo, and they arrived in very good condition; the other Pears consisted of dessert varieties which also arrived in good condition.

BOTANIC GARDEN ON THE MALOJA PASS.—Dr. HANS SCHINZ hopes to be able to publish the first account of the results obtained by forming an alpine garden on the Maloja Pass in the annual report for next year of the Zurich Botanic Garden. During the current year several hundreds of specimens from the Engadine have been planted and duly labelled. The Director acknowledges, with many thanks, the assistance rendered to him in this work by Herr G. HEGI, of Zurich.

APPLE ALLEN'S EVERLASTING.—In respect of this Apple, which we figured on p. 222, Mr. GEO. BUNYARD writes: "As a garden tree it forms admirable, rather upright pyramidal examples, which soon attain a fruiting size, and they bear freely and repeatedly. It also succeeds as a cordon or espalier, and will probably make a neat orchard standard. Though this variety has been before the public for nearly 30 years, it is only those who cater for private tables that would notice it, because its appearance is not striking; but as a long keeping fruit of the highest quality and flavour it has few equals. In our fruit-room it retains its flavour and keeps well until April. As the fruits take a long time to mature they should be allowed to hang upon the trees quite into November, and if gathered too soon they will shrivel and become worthless. Keep them in a cool moist position in the fruit-store. The fruits being produced in clusters they should be thinned, or they will not attain perfection.

THE VEGETATION OF THE GLOBE.—Under the title of *Die Vegetation der Erde*, Professors ENGLER and DRUDE are editing a series of monographs on geographical botany. One of the most interesting of these is now before us, in the shape of a monograph on the distribution of plants in the Caucasus, by Dr. GUSTAV RADDE. The work comprises chapters on the Steppes of the Caucasus, the Colchian district, the Caucasian forests, the rock-plants, the Alpine flora of the Caucasus, and other matters. The work is illustrated with numerous photographic illustrations and maps.

A PANSY DISEASE.—Mr. RALPH E. SMITH in the March number of the *Botanical Gazette* (Chicago), describes a "leaf-spot" disease which has been found very destructive in the State of Massachusetts The disease is characterised by the appearance upon affected leaves of circular, dead spots with a distinct black margin. The shape afterwards becomes irregular. The petals also become spotted and often distorted, and no seed is produced. The fungus which causes this disease is called Collectotrichum Violæ-tricoloris. A figure and description are given in the periodical above mentioned.

APPLE-CANKER. — The cause of this malady was for long a subject of discussion, and for some it still is. Those who are of the same opinion as ourselves, that it is caused by fungi, and specially by Nectria ditissima, should show the strength of their convictions by spraying their trees at this season with Bordeaux Mixture as a preventative. Perhaps they will not think it worth while to do so. Meanwhile, the Americans think it worth their while to profit by our negligence by sending us tens of thousands of barrels of Apples. Some of these should be superfluous if our orchardists paid more attention to their business. Mr. W. PADDOCK, in the *Proceedings of the Western New York Horticultural Society*, January 25, 26, has a very suggestive paper on the subject.

FLOWERS AT WEDDINGS, ETC.—There may be noticed an increasing tendency to associate particular flowers with persons and with names. Most people know how lavishly Primroses were used in the decorations in connection with an interesting event that recently occurred in the family of Lord **Rosebery**. The names of the bride suggested the employment of the Primroses, and of Marguerites. The ceremony took place on the day succeeding that commemorative of the death of Lord **Beaconsfield**, or the display of Primroses might have been even greater. During the same week, we read there was a wedding in a pretty little Cotswold village, the bride's name being **Broom**, and that of the bridegroom **Woodroffe**. Therefore the bridesmaids' bouquets were composed of Broom and Woodruff (Asperula). In many cases such a practise may have pleasurable results, but it will be interesting to see when Mr. Leek or Miss Onions takes a similar step, if the blooms of the fragrant Allium will be given distinction in the same way. It would be best after all to avail ourselves of the prettiest and most useful flowers obtainable when decorations are needed, regardless altogether of the imagined significance of their appellations.

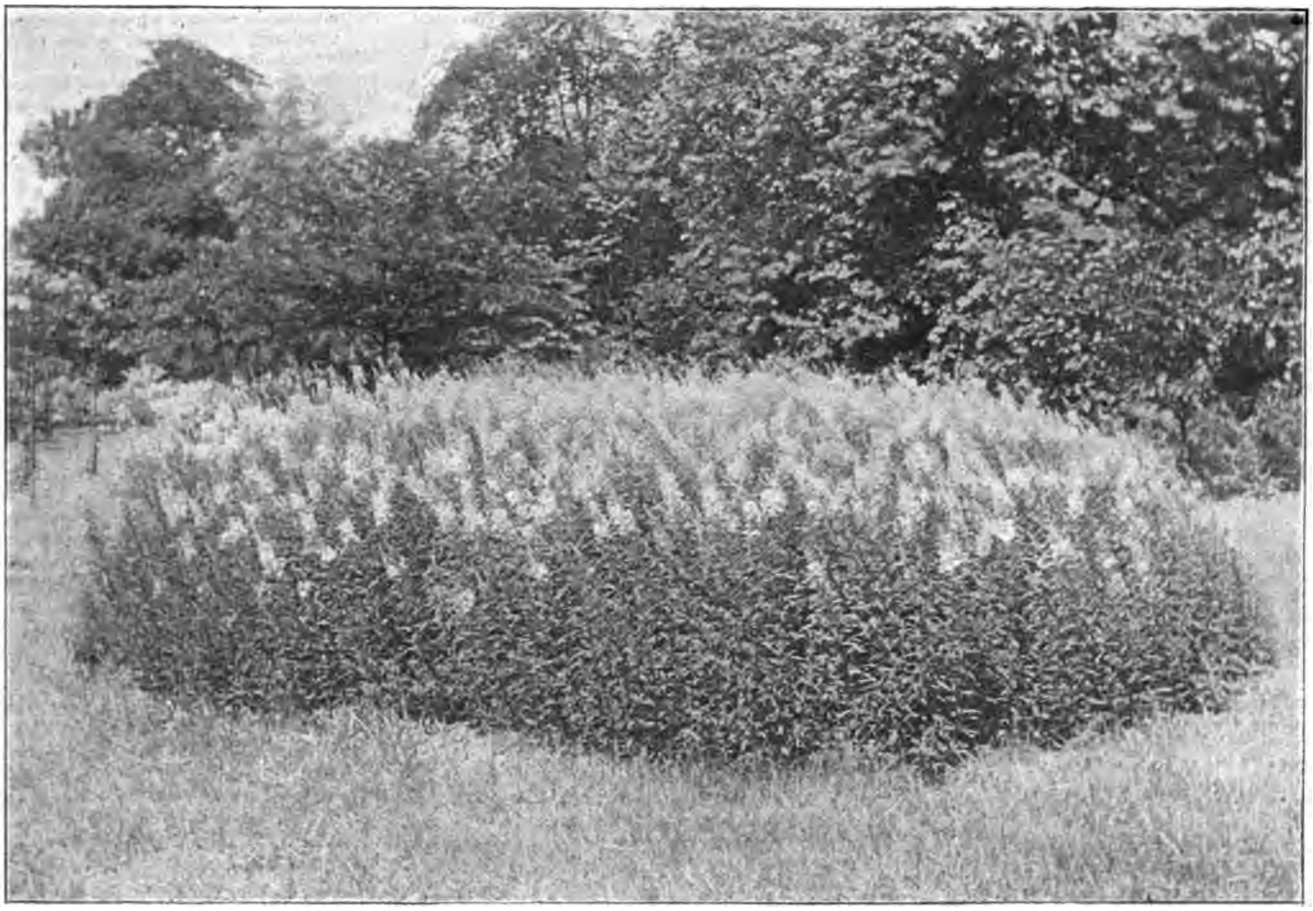

Fig. 99.—A BED OF EPILOBIUM ANGUSTIFOLIUM AT HOLLAND HOUSE. (SEE ANTE, P. 225.)

"**The House-Sparrow.**"—W. B. **Tegetmeier**, F.Z.S. (**Vinton** & Co., 9, New Bridge Street, E.C.).—By everyone save a few sentimentalists, who have nothing to lose by him, the house-sparrow is voted a pest. No careful observer of his habits can spare a good word for him, while traps and snares are devised to defeat even his cunning. The agriculturist bemoans his stolen Wheat, the gardener complains that sparrows pick up numerous seeds, and "devour many seedling plants as fast as they emerge from the ground. In the summer they devour our edible Peas, and where they exist in large numbers they destroy the flower-beds." Mr. **Tegetmeier** treats all said in the defence of these birds with scorn. He thinks little of the theory that the mischievous destruction of hawks, owls, and other carnivorous birds has helped the sparrows to attain their present numbers, and is all in favour of sparrow-clubs and of artful traps, though with some inconsistency he objects to poison as being a "cowardly, painful, and treacherous mode of removing them, which does not commend itself to my consideration, although I confess to drawing a hard and fast line respecting cockroaches and blackbeetles, which can only be exterminated by the continuous use of phosphorus paste." As appendix to the book is included a pamphlet by Miss **Eléanor Ormerod** and W. B. **Tegetmeier**, reprinted from the *Journal of the Royal Horticultural Society*.

Publications Received.—*The Orchid Review*, April, containing notes, papers on "Dendrobium × Ainsworthii as a Wild Plant," Feeding Orchids, Spontaneous hybrids of hardy Orchids, Nomenclature of Hardy Orchids, and similar subjects.—*Bulletin of Miscellaneous Information*, Royal Gardens, Kew, Appendix iii., 1898. List of staffs in botanical departments at home, and in India and the colonies.—*Fruit Growers' Year Book*, 1899 (Hatton House, Great Queen Street, W.C.). This includes an account of Covent Garden, with prices, and description of its management, and fruit notes from various countries. There are also a useful calendar and articles on several fruits.—*Guernsey Growers' Association's Year Book*. Under this somewhat awkward title are included the fourth annual report (satisfactory and progressive, especially as regards exported Narcissus and other flowers); papers on the Arum, Chrysanthemum, and other horticultural topics, and some rules and tables. Bound up in this year-book are the Board of Agriculture's pamphlets on the Barn Owl, Diamond Black Moth, Pear Midge, and Water Wagtail, and also the list of varieties of fruits, issued by the Royal Horticultural Society. These give great value to the publication.—*Guernsey Growers' Gazette*. This is sent every Wednesday to the principal fruit-growers and farmers in the Island, and its contents are appropriate to its destination.—*Queensland Agricultural Journal*, February.—*Agricultural Gazette of New South Wales*, vol. x., part 2, February 1899, with papers on "Native Food Plants and Indigenous Vegetable Drugs," by J. H. Maiden; "The Orange," W. J. Allen; "Hints on Budding," F. J. Ellis; and "Preventatives for Smut," Geo. Valder.—*Agricultural Journal, Cape of Good Hope*, March 16.—*Report of the Natal Botanic Gardens*, for 1898. The Curator, Mr. J. Medley Wood, reports "in all respects a most successful season."—New York Agricultural Experiment Station, Geneva.—*Bulletin* No. 150, 1, Raspberry Saw-fly; 2, Preliminary notes on the Grape-vine flea-beetle; No. 151, Experiments in ringing Grape-vines; No. 152, Two Destructive Orchard Insects; No. 153, Director's Report for 1898; No. 154, Commercial Fertilisers for Potatos.—*Proceedings of the Academy of Natural Science of Philadelphia*, 1898, Part III., September to December.—*Meehans' Monthly*, April, with article and coloured plate of Solidago nemoralis, "Grove Golden-rod."—*Botanical Magazine*, Tokyo, February 20.—*Botanisches Centralblatt*, No. 16.—*Botanische Zeitung*, April 14.—*Handbuch der Botanik* (Breslau).—*Dictionnaire Pratique d'Horticulture*, Livraisons 79, 80, and 81.—*Liste Générale des Membres de la Société Nationale d'Horticulture de France* (Paris), April 1.—*L'Italia Agricola Giornale di Agricoltura*, April 15.—*Westnik* (St. Petersburg).—*The British Moss Flora*, Part XIX., of this periodical bears date February, 1899. We have before remarked upon the excellence of both letterpress and plates prepared by Dr. Braithwaite, which render the volumes of standard interest and value to bryologists.

THE GARDEN AT HOLLAND HOUSE.

(Continued from p. 225.)

The Water Garden. — This high-lying estate is fortunate in having a spring of water at its highest point, the flow from which is allowed to collect in a pool, dug out and hidden in a thicket. The water thus collected is by certain ingenious contrivances led from one part to another on the western side of the north lawn, and supplies, in its course, several square tanks raised above the ground-level, and trickles in narrow channels lined with pebbles from tank to tank, and the overflow from each runs to one at a lower level, and finally reaches a rockery at the boundary of the garden proper.

These overflow runnels afford sites at the sides for numerous dwarf plants, such as Sedges, exotic and native Iris, Cyperus, Thymes, Bamboos, &c., which add greatly to the interest of the garden. The moisture percolates to the right and left of these runnels, and serves to maintain the turf and neighbouring plants in fine condition in the driest years, besides imparting humidity to the air.

The main features of the wild garden, apart from the planting and arrangements found alongside the water-channels, and around the tanks, partake of the formal character of the place, and are therefore quite in harmony with the surroudings; but inside these lines the treatment exhibits considerable freedom. One of the water-tanks previously mentioned is planted with Zizania Indian Rice, and the walls with species of Dianthus. The next tank is planted similarly, but the walls are clothed with dwarf species of Campanula, and Dianthus Napoleon III., a variety raised by Mr. Forbes, of Hawick, N.B., which grows and flowers freely.

The third basin is filled with Marliac's Water Lilies carnea, and others, which flower beautifully; and the wall is planted with Saxifragas. Another tank is filled with Aponogeton distachyon, and the last piece of water that forms a good sized pool is filled with Marliac's Nymphæas, viz., purpurea, rosea, and carnea, and N. odorata, and tuberosa; and around the edge are bunches of Cyperus longus, and various Bamboos, B. Simoni having developed into a mass ten feet through and as much in height. Besides the Bamboos at this part of the grounds a good collection of fine large plants is grown.

On a part of the rockery a trial is being made of species of Opuntia that are likely to prove hardy in this country, but this is only in the experimental stage. Alpine and rock-plants are largely employed along the water courses, and on an extensive rockery, and a considerable degree of success has attended Mr. Dixon's efforts (fig. 100). The remains of an ancient orchard forms a feature in the grounds near the house, the gnarled trunks and limbs and quaint contours of the Apples affording capital contrasts to the stately old Cedars of Lebanon now getting rather bare, the Cupressus, Thuyas, and Planes.

The gardens are full of surprises, and we meet them at every turn. Some portions have not been altered or disturbed for a century or more, and when at distant intervals some alterations and additions have been made, they have followed the formal lines of the old style.

A covered way, built with the southern side open, and furnished with arches resting on square pillars, runs part of the distance from the mansion to the conservatory; Ivy clothes the pillars and hides, or was intended to hide, the rather plain-looking brickwork. This arcade forms a welcome retreat from a sudden storm, and a cool resort on a hot day. The conservatory, originally a coach-house, was many years ago fitted with a glass roof in places, and glazed doors and big windows. It contains a number of aged Camellias, Oranges, Indian Azaleas, Acacias, Oleanders, and others, but it is ill-adapted for the cultivation or preservation of the flowering subjects. The other glass structures are of old date, and not very commodious or useful, according to modern notions.

The oft-repeated statement that plants of other climes, and especially those which come from the pure air of the Alps of Switzerland and other mountanous regions, will not succeed in London, will be taken with a certain amount of incredulity by those who have scanned this article and noted the great variety of tree and shrub, herbaceous, perennial and alpine, which not merely exist but grow with freedom in this garden. *Apropos* of alpines, mention should be made of Campanula Fosteri, which, when sent over to Mr. Dixon by M. H. Correvon, of the Jardin d'Acclimatation, Geneva, was stated by the latter to be very unlikely to succeed at Kensington, as it needed mountain air, together with certain conditions not to be obtained there; yet this purely alpine plant is at this date perfectly healthy, and it is making fair growth.

The kitchen-garden, an apparently productive piece of land, is situated on the western side of the estate. Its vegetable quarters are bounded by healthy espalier Pear and Apple-trees, of remarkable height and breadth.

We may say, then, that the garden pleases by what is reminiscent of other days, as well as by what is of recent creation. And both the old and the new are very different to the ordinary run of private gardens, and on that account delightful to the non-gardening visitor and gardener alike. For ourselves, we look on much of the gardening there as experimental, and shall watch with interest the behaviour of many of the plants growing in the open air. That which will succeed at Kensington ought to do so in most if not all of our parks and public gardens.

HOME CORRESPONDENCE.

DOES PRIMULA SINENSIS CAUSE SKIN IRRITATION?—I have a staff of workmen who are continually engaged in handling this plant during its season of growth; and the foreman tells me that though he has known no case of eczema being caused thereby, yet a painful irritation is felt when, for instance, a workman rubs his eyes with his hands, and the smart will continue for some quarter of an hour. This is especially the case during hot weather, when the face is moist through perspiration. *Ernst Benary, Erfurt, Germany.*

PRIMULA OBCONICA CAUSING IRRITATION.—I am sorry to see so many complaints in the *Gardeners' Chronicle* against what I consider the most useful of all Primulas, whether for the provision of flowers for cutting, or as pot plants. I hear of gardens from which it has been banished, not because it has affected any one, but because the plant has now obtained a bad name. On the contrary, I have discarded all other Primulas in its favour, and intend to grow it in increased quantity. I have 200 plants this year, which are perfect masses of flower and foliage. By selecting and crossing the best colours for some years, I have now many beautiful shades of colour, and the plants are of a dwarf habit. *W. W., N.B.* [A number of blooms and foliage of P. obconica that accompanied the above note were wonderfully fine, the size of blooms and of foliage being uncommonly large. In colour, the flowers vary from what is almost white to very deep rose—deeper than we have previously seen these flowers. Nevertheless, "W. W.," we shall be inclined to exercise care in handling these glorious specimens. Ed.]

CHRYSANTHEMUM L. CANNING.—We are sending a few blooms of this white Chrysanthemum. We commenced to cut blooms (for sale) of this excellent late variety last December, and have had a constant supply from that date until April 15. From 400 plants, in 6-inch pots, we have cut 2200 fine blooms. We take our cuttings of this variety in May, for if late blooms are required the cuttings should not be struck early. *W. & J. Brown, Nurserymen, Stamford and Peterboro.* [The blooms sent with the above note are fresh, and but partially expanded. Ed.].

VIOLET LADY HUME CAMPBELL.—In answer to the enquiry in last week's issue, the above Violet was brought by Lady Hume Campbell from Milan, about 1878, and was exhibited by Mr. Brush at the Royal Horticultural Society, in 1881, and sent out by Mr. Charles Turner the same year. *T.*

—— I remember that this variety originated with, or was first grown by Mr. Brush, who was gardener to Lady Hume Campbell, Eastcote, near Pinner. I think the stock of it passed into the hands of Mr. C. Turner, who distributed it. There is little if any difference between this and the variety De Parme. *C. H.*

—— I cannot give the parentage of this splendid Violet, because, since I took charge of these gardens, I have not met Mr. Brush the gardener, who, it is alleged, was the raiser of the variety. I have no reason to doubt that it originated at this place [?], and was named in honour of his employer, Lady Hume Campbell. *F. Strong, gr., Highgrove, Middlesex.*

PROPAGATING VIOLETS.—I notice in the "Week's Work," on p. 246, that Mr. Fielder recommends a method which I disagree with. It is, I submit, better just before lifting for the winter to take as many cuttings as one requires for another season, and insert them in cold frames or boxes in a compost of light sandy and leafy soil. These cuttings will, if well looked after, make excellent plants for the following spring without disturbing the old clumps in the frames, which must be more or less exhausted with flowering, and cannot compare with the plants raised from cuttings by my method. No one need fear that they will not grow large enough, for they both make larger clumps and produce better blooms, and are not so liable to attacks of red-spider, or to die off, as the others. I have, now, two three-light frames of Lady Hume Campbell, which are a mass of blossoms which it would be a great pity to disturb when one can get such good results in the manner named. *F. Strong, gr., Highgrove, Middlesex.*

BIRDS AND FRUIT TREES.—I agree with most of that which Mr. C. Herrin wrote on p. 246, but from personal observation I do not think tom-tits destroy fruit-buds, as on more than one occasion, when waiting under Apple trees with a gun for bullfinches, I have noticed tom-tits settle over my head, open the buds and examine them for insects, and also in Pear trees, but in no case could I discover that the tom-tits had destroyed the bloom-buds. I know to my cost in some seasons that they are partial to late Peas, and have the mischievous habit of pecking the stalk-ends of Pears, but in the matter of fruit-buds I think they are often blamed for the damage done by the fruit-grower's worst enemy, the bullfinch. We know that insects are the natural food of the tits, and in times of insect scarcity a few pounds of suet suspended in various parts of a garden will keep tom-tits from doing harm to the fruit-blossoms. *R. M., Newbury.*

FERN STEALING.—I enclose you a full report of an important case tried at our County Court, Friday, 21st inst., in which London Fern-collectors were convicted (see p. 271 in present issue). By one report, Love is shown to have been fined £5 and costs; and by another, mulcted in that sum or the alternative of two months imprisonment with hard labour. There has been much grumbling in this county lately at the depredations of these Fern-collectors, and any further cases will, I hear, be dealt with pretty severely. These vagrant collectors know the popular sorts of Ferns, and, passing over the common kinds, take the more marketable and rarer sorts found in our lanes and on our hills. The slopes of the Haldon range were and are still fairly rich in Ferns, and so are some of our woody glens and commons near the valley of the Otter and near Exeter, but this wholesale plundering is much impoverishing them. *Andrew Hope, Exeter.*

MARÉCHAL NIEL ROSE.—While carefully reading the thoughtful and interesting notes of Mr. William Earley and "A. D." (p. 220, *Gardeners' Chronicle*), yesterday I received the following note from Mr. Todd, the art florist of Maitland Street, Edinburgh, who has probably handled as many Maréchal Niels and other Roses as any other living man:—"It occurs to me," writes Mr. Todd, "that you would be interested to know that the finest Niels ever offered for sale in Edinburgh

Market have been there for the past two Saturdays. They are grown by Mr. Turner, who holds the gardens of Dalhousie Gardens as a market-garden. The Niels are on their own roots; and for foliage, substance of bloom, richness of colouring, and strength of stem, would not be easily beaten." This is not merely a plant with an odd bloom or two, but from one large plant and two smaller ones. Mr. Turner has cut during the last ten days some 700, and there are plenty more to come. Mr. Todd also mentions that many years ago, his father grew a large plant of Maréchal Niel that got latterly on its own roots when the stock failed, and produced fine crops year after year. I have also handled good Maréchals on their own roots, and have seen magnificent examples in Herts, Cambridge, Middlesex, and other counties. I have been to see some of the Dalhousie Roses to-day and find them all that Mr. Todd describes in his note before me. Growing the Maréchal Niel Rose on its own roots, does not, however, wholly avert the unwholesome swelling, though it goes a long way towards curing their next most persistent fault, the drooping of the blooms. I can hardly recall a case in which own-rooted Niels did not stand up more strongly in consequence, for the flower-shoots on own-rooted Niels are longer as well as stronger than those of worked plants. Possibly a liberal thinning of the flower-buds might strengthen as well as lengthen the flower-stems, as well as help to cure the swelling. Doubtless very many market-growers of M. Neil, will ask with Mr. Todd, why all this difficulty as to the most suitable stock if this success can be obtained without a stock at all. *D. T. Fish.*

THE TAXATION OF GARDENERS.—Mr. Treeby's case, referred to so fully in the *Gardeners' Chronicle* recently, has, because of the wide publicity given to it, helped to draw attention to the harm done to the gardener's vocation by the excise laws, which regard the gardener as a mere luxury for the wealthy, and not as an ordinary worker seeking a livelihood. Of course, it is answered, that if gardeners can only be kept when a license-duty is paid for them, it cannot affect the worker, because the employer has to pay the tax; but the gardener may well ask why out of the myriads of vocations of an essentially industrious and productive nature, he should be singled out for taxation? Engineers, clerks, foremen, carpenters, bricklayers, and millions of other workers whose wages exceed those of the gardener three, four, or five times in amount, are non-licensed. Is not the gardener as much a producer and a necessity in our midst as is any one otherwise occupied? Is not this license-duty a tax on labour, and if paid by the employer, does it not serve to check employment, because the employer finds or regards licences of this nature as specially onerous and deterring? We are so apt to accept what is, and to lightly regard the evil that it may be doing. Surely we have in the kingdom no occupation that is more useful, more worthy of all encouragement, than is that of the gardener. Yet we have for years submitted to the imposition on the gardener and his labour of a tax that is a direct impost on labour. Ought not gardening to be relieved from this burthen and stigma? It is most oppressive on the best trained element in horticulture, whilst the mere labourer escapes. In reference to Mr. Treeby's case, I could but think what would happen if he tried to get over the Inland Revenue Department by sending one man half a week to Mr. Estcourt's garden, and a second man the other half. [Or he might send a man for five and a half days only.] How would the case stand then? *A. D.*

A NARCISSUS SOCIETY.—It is now the custom to establish a society to promote the culture and exhibition of a particular flower, and so it need cause no surprise that one outcome of the recent Narcissus show at Birmingham may be the establishment of a Daffodil society, with Birmingham for its centre. At that exhibition Narcissus cultivators were present from diverse parts of the country, and at a dinner held at the Midland Hotel on the evening of the first day, an opinion was generally expressed not only that it would be a proper step to form such a society, but also to have in connection with it a journal, monthly or otherwise, in the interest of the Narcissus. Instances were given of the misconceptions regarding the treatment of the Daffodil by persons who make an attempt to grow it, and it was thought that a journal conducted by some competent authority would be of great service. Whether both or either of these propositions are likely to become actualities, remains to be seen. *D.*

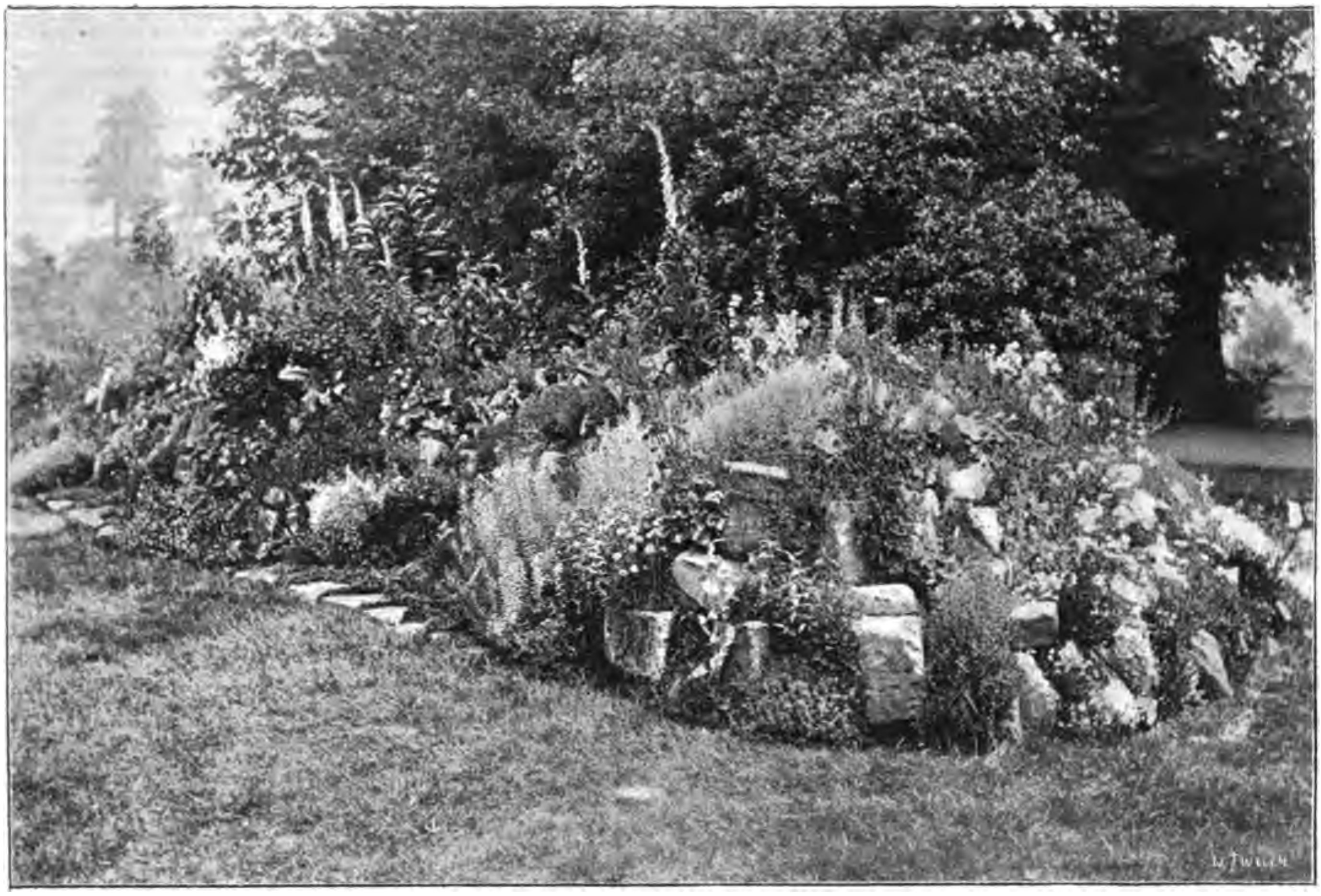

Fig. 100.—The Rock-garden, Holland House. (See p. 268.)

CAMELLIAS (See also p. 262).—In reply to your correspondent, "R. C.," in last week's issue of the *Gardeners' Chronicle*, I may say that it is generally recommended to repot Camellias in the autumn, after the flower-buds have set, affording a small shift, and a soil consisting of fibrous loam, with the addition of a small quantity of peat and sand, and pruning to take place in the spring, cutting away any weak and sappy growth, and stopping any shoots not required for extension, according to the shape of plant it is desired to grow. I believe most varieties succeed equally well, either in pots or on a border. There are gardeners whose methods differ from mine. *E. H. S.*

ROYAL GARDENERS' ORPHAN FUND.—When all is said and done, I imagine no practical amendment of any faults there may be in connection with voting for candidates is likely to be made as long as human nature is what it is. Little or no fault can be found with the rules or the management. What is faulty, is that subscribers, when they vote, forget the benevolent intentions of the fund, and allow interests and influence to hold sway. And has it not always been the same in connection with the Gardeners' Royal Benevolent Society? As I take it, filling up these voting-papers is a most responsible undertaking, and we are in duty bound to weigh well the many calls for help, and to vote on the merits of the candidates only. Is this always done? Do not trade influences, personal friendships, and the like, too frequently influence votes, and the election of candidates? What may be termed the minority clause, or cumulative annual votes, registered in favour of candidates who are not successful, seem to be the only hope of those candidates who have only the merits of their cases to depend upon. My only doubt when I moved and carried on the G. R. B. I. committee the clause that gardeners in receipt of £30 per annum should be eligible was, whether it were not better to maintain the original limit of £20, so that the poorer they were, the more the benefit was needed, and would be appreciated. *William Earley.* [If the committee made the selection of the candidates, and left the members to ratify the selection, or to propose other candidates, much trouble, expense, and needless anxiety would be spared. Ed.]

SPARROWS, SHREW-MICE, AND CARNATIONS.—I can quite confirm that the sparrows are the miscreants that injure the Carnations. I have seen them doing it. A few years ago the leaves were eaten off in a much neater fashion by a shrew-mouse. In that case the leaves were cut off short by the sharp teeth of the animal, but the ends of the leaves injured by sparrows are smashed by their beaks like the end of a cooked Asparagus that has been sucked. I find they do it whenever the temperature is colder. It almost certainly indicates a frost or a cold spell; I presume under these conditions the foliage becomes sweet. Polyanthuses and Primroses, I notice, are chiefly bitten off on the shady side of the garden, or from weak plants. Those in full sun and flourishing are rarely touched. Black thread over the plants is the only protection I find of any use; the birds catch their wings in it, and are apparently afraid of not getting away in time. For the Carnation, soot is certainly useful till washed off, and is good for the health of the plants when that happens. *E. M. H.* [Campanula muralis and Agrostemma Flors Jovis have been terribly mauled by the sparrows this year; perhaps pigeons aided in the destruction. Ed.].

WINTER SALADS.—I am situate only about 5 miles from Sidmouth, where your correspondent, Mr. Milne-Redhead, obtained such poor salads towards the end of February. With a good supply of Hick's Hardy White Cos, and All-the-year-round Cabbage Lettuce, from seeds sown in the third week in July, and again a month later, and which we plant out in an open spot, I can obtain in four seasons out of five good heads of Lettuce well into December. I have raised a good number of the Cabbage variety that had well-formed heads at the end of October, when they were planted in cold, freely-ventilated pits, and placed as near the glass as possible, but the results have not been satisfactory. Such plants soon decay, or, failing this, make elongated stalks, which render them unfit for the salad-bowl. Time back I have made a hot-bed of leaves and stable-dung early in January, and placed 1 foot of soil thereon, and when I found the heat declining have planted a good batch of Cabbage Lettuces, that had been standing at the foot of a south or west wall. They were planted thickly, and were only covered at night or during rain. From such plants I have cut fairly good heads early in March, but this method necessitates much labour, and is seldom adopted. We are never able to cut a moderately good Lettuce from the open until the first week in April, when Lee's Hardy Green or Hammersmith may possibly be had, followed by Hick's Hardy White Cos, a capital Lettuce for use early in May, and for standing through the winter in Devon. *J. Mayne, Bicton.*

—— All of the correspondents who have written of winter salads omit one useful addition to the salad-bowl, viz., Corn Salad, or Lamb's Lettuce. This plant is much appreciated by those who like salads as they are served on the Continent. Seeds should be sown in mid-autumn, and when the ground is not too dry; and two or three s made at intervals will afford a sufficient supply till Lettuces are ready for consumption in the spring. The Cos Lettuces are all of them very unsatisfactory when forced in frames, and in the open I find it is useless to attempt to grow them even in South Devon, some 12 miles distant from Sidmouth, unless planted in a single row, close to the walls of forcing-pits, or any warm-house. Lettuces for winter should be grown in frames, placed on a mild hot-bed of leaves and stable-litter, and from the time of planting until the Lettuces are ready to cut a very small amount of air should be admitted to them. The best variety for this season, and the quickest to turn in, is Veitch's Golden Queen, which is a compact head, of a pale yellow colour. *T. H. Slade, Poltimore Gardens.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

Present: Dr. M. T. Masters (in the Chair); Mr. H. Selfe Leonard, Rev. W. Wilks, Mr. Elwes, and Rev. G. Henslow, Hon. Secretary.

Alpine Auriculas, Mildewed.—A plant was received from Rev. C. Wolley-Dod infected by a fungus. It was forwarded to Dr. W. G. Smith for examination.

Apple-wood, Diseased.—Some specimens received from Mr. Basham were also sent to Dr. Smith.

Germination of Daphne Mezereum.—Mr. Elwes described some curious differences between the germination of some seeds of this shrub, in which the plumule grew up normally above-ground; while in others, from some unaccountable cause, it appeared to be arrested for a long period before appearing, although they sent down roots underground in the usual way.

Hyacinth Stem and Leaves Growing Downwards.—Mr. Henslow showed a plant, the bulb of which had been accidentally inserted upside down. The roots had grown normally downwards; but the shoot, instead of turning upward towards the light, had also grown vertically downwards, the greatest energy of growth being at the base of the leaves. It subsequently elevated the bulb into the air, removing all the roots from the soil, and continued to grow solely at the expense of the nourishment contained in the bulb. The flower-stalk, closely invested by the leaves, was 7 inches in length.

Carnations attacked by Acarus.—Mr. Michael reported upon the specimens sent to the last meeting as follows:—"The Carnation pest is a Tarsonymus. All this genus are destructive and difficult to eradicate, in consequence of their leaf and stalk-mining habits."

Diseased Carnations.—Dr. W. G. Smith, Leeds, reports as follows:—" On the Carnations sent none of the fungi usually present was found, e.g., rust, leaf-spot, fairy ring-spot. The symptoms presented are those of the disease known as 'bacteriosis.' This is the name given by Arthur and Bolley (Purdue Univ. Agric. Exp. Station, *Bulletin* 59, 1896), because they ascribed the disease to the action of a Bacterium (B. dianthi). They were able to infect healthy plants with cultures from diseased specimens. A Belgian investigator, Paul Nypels, published in 1898 (*Notes Pathologiques*), some observations on the disease, which point to some other agent than bacteria as the primary cause. Other workers also hold this view. The disease is well known, and very destructive in the indoor cultivation of Carnations in the United States and in Belgium. The conditions favourable to it are overcrowding, defective ventilation, and the effect of moisture on the foliage, due to overhead watering. Prevention is evident, except for the last item mentioned; but overhead watering must be reduced as much as possible. The structure of the Carnation-leaf indicates a plant suited to a dry open situation, like our native Dianthus, on rocks, old walls, and open pastures. In indoor cultivation means must be adopted to prevent too frequent wetting of the foliage. This has been done by some growers in America, as described by Arthur and Bolley. Pieces of wire-netting bent into a Λ shape are placed between the rows of plants, so as to keep the lower leaves clear of the stages. The water is then applied by means of a hose directed into the Λ, and the water is distributed to the roots by a nozzle, delivering on both sides. Arthur and Bolley give illustrations in paper sent herewith. The method has been successful against this and other diseases of indoor Carnations. Where this disease has already shown itself, it may be checked by spraying the foliage with Bordeaux Mixture."

Vines Malformed.—Mr. G. Wythes, of Syon House, sent branches of Vines with malformed flowering bunches, supposed to be due to fog, but they presented a not uncommon condition of being tendrils bearing abortive buds. As Darwin, and many others before him, point out, Vine tendrils are homologous with flowering shoots, and such transitional states between simple tendrils and bud-bearing ones occur on all Vines, and have nothing to do with external climatic conditions.

Effect of Lightning on an Oak.—A specimen received from Dr. Plowright, of Lynn, showed how Oak-wood is sometimes torn into longitudinal fibres by electricity. "The trunk from which this specimen was taken was that of a tree grown in East Anglia, and purchased for timber by a timber-merchant in King's Lynn, from whose wood-yard it was obtained. The amount of injury was comparatively slight, consisting only of a groove cut from top to bottom of the trunk, about 2 inches wide, and extending only a very short distance into the woody tissues, but tearing them up longitudinally into strips several feet in length."

Witches' Broom on a Scotch Fir.—This was received from Dr. Plowright, who writes:—"The specimen is sent by Hamon L'Estrange, Esq., and was found growing upon one of the Fir-trees in his park at Hunstanton Hall, Norfolk. It consists of a mass of hypertrophied 'dormant buds,' measuring a metre in circumference round its widest part, and weighs 2¼ kilogrammes. It is borne upon a branch which shows eight angular rings, and springs from a lateral shoot. It is interesting to observe that this shoot is itself hypertrophied, as compared with the corresponding one on the opposite side of the branch, but that this hypertrophy only extends as far as the growth, beyond which it is atrophied and dead. The growth itself consists of seven or eight rounded masses, composed of aborted shoots—partially developed buds closely aggregated. The masses are of varying ages, some bearing green leaves, while others are quite dry and dead." The origin is supposed, in some cases, to be due to the attack of a Phytoptus, in others to a fungus, Æcidium.

Malformed Bulbous Plants.—A quantity of decayed and arrested bulbous plants were received, both from St. John's Wood Cemetery, Marylebone, and from Lincoln's Inn Fields. Both cases illustrated the effect of premature growth from the very mild winter, followed by severe check during the week of frost, and subsequently by excessive wet. Mr. Henslow observed that on the high ground and clay soil of Holland Park, bulbs have come up exceedingly well, having been planted in September.

Apple Trees affected by Grubs.—Specimens received from the Chiswick Gardens were referred to Mr. McLachlan, who has reported as follows:—"The larvæ in the Apple-twigs are no doubt those of Laverna vinolentella, which was formerly considered a variety of L. atra (the larva of which feeds on the fruit of Hawthorn), but is now regarded as distinct. I am not aware that it has ever been found sufficiently common to occasion serious damage; but as the egg is, no doubt, laid in or on a bud, and the depredation primarily confined to the bud, it is evident that the question of serious damage is only one of degree.

Odontoglossum crispum.—Dr. Masters exhibited a spray on which every flower had three, and sometimes four, stamens instead of one only. It was received from Mr. Young.

Jatropha podagrica. — This scarlet-flowered species was awarded a Botanical Certificate. It is a well-known plant in botanical gardens.

MIDLAND DAFFODIL.

April 13, 14.—There were exhibitors from all parts of the country; Ireland sent fine contributions. The show-house of the Botanical Gardens, Edgbaston, was taxed to the utmost to provide the necessary space.

But one collection of not fewer than fifty varieties competed for the Silver Daffodil Cup, given by Messrs. Barr & Son, it came from the Rev. J. Jacobs, Whitewell Rectory, Whitchurch, Salop.

There were three competitors in the class for twelve varieties of true Trumpet Daffodils, Mr. W. J. Grant, Bassaleg, Newport, Mon., taking the 1st prize with very good blooms.

There were thirteen stands of six distinct varieties. Mr. J. C. Williams, Caerhays, Stansted, was 1st, having very fine examples of Victoria, Glory of Leyden, Emperor, Weardale Perfection, Horsefieldi, and Madame de Graaff.

With twelve distinct varieties of Medio coronate Daffodils, Miss Currey was placed 1st with finely-developed blooms of Barri conspicuus, Lulworth, pure white perianth, with a bright orange cup; Queen Sophia, Duchess of Westminster, Madame M. de Graaff, and Commander. There were nine competitors, with six varieties, Mr. J. C. Williams taking the 1st prize with Sea Gull, White Lady, Albatross, Dorothy York, and seedlings, all very good.

The Parvi coronate Daffodils were also very good, and comprised varieties from two sections, viz., Burbidgei and Poeticus. Mr. W. J. Grant was 1st with twelve, having excellent examples of Falstaff, Constance, Præcox grandiflorus, Baroness Heath, angustifolius, Princess Louise, &c.

Mr. P. D. Williams was 1st out of nine competitors, with six varieties, having in fine form John Bain, Ornatus Beatrice Hesseltine, and seedlings.

DAFFODILS IN POTS.

By way of giving additional interest to the show, there were classes for Daffodils grown in pots. In that for twelve varieties, Mr. R. Sydenham took the 1st prize for finely-grown and flowered plants of leading varieties; and Mr. R. C. Cartwright for six pots. There were classes also for Polyanthus Narcissi in pots, finely-grown and flowered specimens being staged.

There were two classes for Daffodils as well as Polyanthus Narcissi grown in bowls with cocoa-fibre, all well done, and proving what fine blooms can be obtained in this way.

TULIPS.

A class for six pots of early single Tulips was a very attractive feature. Mr. R. Sydenham was 1st, staging finely-grown and flowered varieties, such as Van Spaendock, Unique, Prince of Austria, Proserpine broken, &c. Tulips were also shown in bunches.

There were classes for Cinerarias, herbaceous Calceolarias, Lily of the Valley, Lilium Harrisii, and Cyclamen.

Of seedling Narcissus, Certificates of Merit were awarded to Parvi coronate, Incognita, white perianth, with large, deep golden cup, edged with red; Edmond's white Medio-coronate, white, with sulphur cup; Firebrand Parvi-coronate, white, with orange-scarlet cup of a brilliant colour, from the Rev. G. H. Engleheart. To Trumpet variety Duchess of Bedford, from Messrs. Barr & Sons, King Street, Covent Garden; and to Messrs. Pope & Son, nurserymen, Birmingham, for Pope's King, a fine deep golden variety, regarded as a distinct improvement upon Golden Spur.

Collections of Daffodils in great variety were staged by R. H. Bath, Ltd., Wisbech; Messrs. Barr & Sons; Messrs. Hogg & Robertson, Dublin, who had in addition a large and interesting collection of Tulips; T. S. Ware, Ltd., Tottenham; and R. Sydenham. Messrs. Hewitt & Co., Solihull, had charming decorations in Daffodils; and Messrs. Sampson & Co., Florists, Birmingham, a collection of cut Daffodils.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

April 18.—At a meeting held on the above date, there were present G. Shorland Ball, Esq. (in the chair), and Messrs. W. Thompson, G. W. Law-Schofield, H. Greenwood, P. Weathers, J. Cypher, W. Holmes, W. Stevens, R. Johnson, and T. Mills (Hon. Sec.).

Thomas Statter, Esq., Whitefield (gr., Mr. Johnson), showed among other plants Cattleya intermedia alba (First-class Certificate), and Cypripedium Godefroyæ Veitchi (Award of Merit).

Saml. Gratrix, Esq., Whalley Range (gr., Mr. McLeod), showed Dendrobium Wardianum Gratrixi (First-class Certificate), Dendrobium Falconeri giganteum (Award of Merit), Lælio-Cattleya Hon. Mrs. Astor (Award of Merit), Cypripedium insigne, Harefield Hall variety (First-class Certificate), and Odontoglossum triumphans (Award of Merit).

John Leemann, Esq., Heaton Mersey (gr., Mr. Edge), showed Cattleya Lawrenceana (Award of Merit), Odontoglossum crispum (Award of Merit), a Cypripedium hybrid from bellatulum, and some other species (First-class Certificate).

Dr. E. J. Sidebotham, Bowdon (gr., Mr. Shiner), was awarded a First-class Certificate for Cypripedium caudatum Wallisii.

Hy. Greenwood, Esq., Haslingden (gr., Mr. Gill), showed Odontoglossum Humeanum, H. Greenwood's variety (Award of Merit), O. nebulosum (Award of Merit), Dendrobium Clytie (Findlayanum × Leechianum) (Award of Merit), D. nobile nivalis; D. n. Highfield variety (Award of Merit).

O. O. Wrigley, Esq., Bury (gr., Mr. Rogers), showed Cypripedium Argus Moensæ (Award of Merit), C. villosum aureum magnificum (Award of Merit), Dendrobium nobile symmetry (Award of Merit), Cypripedium Mastersianum superbum (Award of Merit), and other plants.

Mrs. Briggs, Bury, Accrington (gr., Mr. Wilkinson), obtained an Award of Merit for an Odontoglossum hybrid.

J. Charlton Parr, Esq., Warrington (gr., Mr. Masterton), showed a collection of cut blooms, for which he was awarded a Cultural Certificate.

Edward Holt, Esq., Prestwich (gr., Mr. Murphy), received a Vote of Thanks also for cut blooms.

Captain J. Barlow showed Chysis bractescens (First-class Certificate and Cultural certificate).

Mr. James Cypher, Cheltenham, showed Cypripedium Winifred Hollington (Award of Merit); C. niveum grandiflorum (Award of Merit); Odontoglossum Rossii Amesianum (Award of Merit); Lælio-Cattleya Highburyensis (Award of Merit); and Epidendendrum bicornutum (First-class Certificate).

Messrs. F. Sander & Co., St. Albans, showed Cypripedium × cilholare × niveum (Award of Merit).

DUMFRIES AND GALLOWAY HORTICULTURAL.

April 18.—On the above date a lecture on "Daffodils" was delivered by Mr. S. Arnott, Carsethorn, who briefly sketched the history of the Daffodil, discussed its cultivation, and also gave detailed descriptions of the principal representatives of the different groups.

There was a large collection of Daffodils and other spring flowers, including Orchids, from various growers. Owing to the unfavourable weather, the local growers were not so well represented as they otherwise would have been. Those showing flowers were as follows: — Messrs. Barr & Sons, London; Messrs. Hogg & Robertson, Dublin; Messrs. Smith & Co., Worcester; Messrs. Kerr Bros., Dumfries; Mr. James Service, Maxwelltown; Mr. James Davidson of Summerville, Maxwelltown (gr., Mr. W. Caldow); Mr. John Primrose, Arunel House, Maxwelltown (gr., Mr. Jas. Allan); Mr. Galbraith, Terregles (gr., Mr. J. McKinnon; Mr. W. Boyd, Melrose; and Mr. S. Arnott, Carsethorn. A large consignment from Mr. W. B. Hartland, Cork, arrived too early for use.

NATIONAL AURICULA & PRIMULA.

April 18 (*Continued from p.* 250).

Of Miscellaneous exhibits partaking of the character of the show, Mr. J. H. Arkwright's grand yellow Primrose, Evelyn Arkwright, appeared to be finer than ever. It is evidently cultivated in a manner that brings out in the highest degree the possibilities of this fine variety. Mr. J. C. Arkwright, also hailing from Hampton Court, Leominster, had a collection of Primulas of various types. Species of Auriculas, Polyanthus, Primroses, &c.

The Guildford Hardy Plant Nursery Co., had a basket of pretty, small-growing species of Primulas, bedded in Sempervivum and rockwork. It was a meritorious object-lesson in arrangement.

Messrs. Geo. Jackman & Son, Woking, had in a large collection of plants, a panel of various double Primroses, and also collections of single Primroses and Polyanthus, with varieties of P. Sieboldi.

Messrs. Collins Bros. & Gabriel, florists, Hampton, staged a large and varied collection of Polyanthus in pots, which formed an attractive feature.

If a supplemental Auricula show could be held on May 2, a very fine display would be forthcoming, as the main of the Auriculas will then be at their best. The date was too early this year, the spring being so retarding, but the wisest among us cannot possibly foretell the character of the weather in the changeful month of April.

CHESTERFIELD AND DISTRICT CHRYSANTHEMUM.

April 19.—The fifth annual show of spring flowers in connection with the above Society was held in the grounds of Whittington Hall.

Four tastefully-arranged groups, each about 100 square feet, occupied the centre of the tent, the exhibitors being Mr. Nelson, gr. to A. Barnes, Esq., Ashgate Lodge; Mr. Horsnall, gr. to J. E. Clayton, Esq., Thornfield; Mr. Bloxham, gr. to R. F. Mills, Esq., Tapton Grove; and Mr. Jenkinson, gr. to Mrs. Burkitt, Stubbing Court.

Mr. Nelson had excellent Daffodils in pots, also Staphylea colchica, Cannas, Azaleas, &c.

Owing to the extreme lateness of the season, the display of hardy flowers was disappointing.

Mr. Nelson was successful with Hyacinths, Azaleas, Palms, greenhouse and stove flowers, and exhibited a well-grown and finely-flowered plant of Dendrobium thyrsiflorum, which was greatly admired.

Messrs. Proctor & Sons, Chesterfield, made an attractive display of Boronias Ericas, Cytisus, pot-Roses, and Hydrangea Hortensia. Mrs. Shentall showed a fine collection of Narcissus

LAW NOTES.

PROSECUTION OF FERN COLLECTORS.

Proceedings at Exeter.

At the Castle of Exeter, April 21, before Mr. E. F. Studd (in the chair) and Sir Robert Newman, Jack Sanders, *alias* Smith, of no fixed abode, was charged with having, on March 29, done wilful damage to certain real property at Kenn, to the extent of 1*s.* 6*d.*, the property of Mr. J. H. Ley. George Adams and Jack Sanders were jointly charged with wilfully damaging certain property at Haldon on the 30th of last month, the property of Mr. Short. Thomas Love, general dealer, of Covent Garden, was summoned for aiding and abetting the two former defendants to commit the said damage within the last six months. Adams and Sanders appeared in the custody of two warders, they being undergoing a term of imprisonment for a like offence in Dorset. Mr. Baker (Messrs. Dunn & Baker) appeared for Love, who pleaded not guilty.

Henry Palmer, bailiff, said that on the day in question he was in a wood at Kenn, near Round Hole. He there saw the two men digging Ferns. They had a mattock and trowel with them. There was a horse and cart there which bore the name of T. Love, but he could not say what the address was.

P.-C. Ridler said on Thursday, March 30, he was on duty at Haldon, where he saw Adams and Smith, who gave the names of T. Love and Jack Sanders. The men were then on Mr. Ley's estate. Witness saw Adams pulling up the Ferns, and Smith was putting them in a bag. Witness followed them up the road, and saw they had a pony and cart there, which bore the name of T. Love. There were about seventy or eighty roots in the bag.

Thomas Love, general dealer was then put in the witness-box, and stated that he lived at Battersea, and carried on business in Covent Garden. He bought Ferns when they were brought to him. He had Ferns from a lot of people, but never gave instructions with reference to them, nor did he know how the men obtained them. He had not received a communication from Adams to say the Ferns were coming.

The Bench, after a short deliberation, addressing George Adams, stated that he had been to prison several times and fined for similar offences, and he was now undergoing a term of imprisonment for a like offence. He would be sentenced to one month's imprisonment for each offence, the sentence to run concurrently. With regard to Jack Sanders, they thought he was not so much to blame as Adams. They thought he had been led away by him, and as he was undergoing a term of one month's imprisonment, he was sentenced to one week for each offence. As to the case against Thomas Love, they had not the slightest doubt from the evidence that he was guilty. A fine of £5 and costs (£11 18*s.*) was imposed upon him.

Obituary.

Mr. J. W. Chard.—The death of Mr. J. W. Chard, at Clapham Common, on the 23rd ult., at the age of seventy-five years, recalls to memory one who was a central figure at horticultural exhibitions a generation ago, and who was a worthy member of the craft, able, manly, upright, and courteous. Born in London in 1824, he began his gardening career by being apprenticed to Mr. Woodin, gardener to Sir George Robinson, Bart., Cranford Hall, Kettering, and after his term of service there he went to the Pine-apple Place Nursery of Messrs. Arthur Henderson & Co., St. John's Wood, who sent him as foreman to Mr. Dedman, gardener to Sir Samuel Scott, Bart., Sundridge Park, Kent, and from there he went at twenty-one years of age as gardener to Sir Frederick Bathurst, Bart., Clarendon Park, Salisbury, where he greatly distinguished himself as a cultivator and exhibitor of specimen plants, Roses, and table decorations. In regard to the latter he displayed a considerable amount of originality of design and good taste, making his mark at the exhibitions of the Royal Horticultural and the Royal Botanic Societies, also at the Crystal Palace, the Agricultural Hall, and the Alexandra Palace. He also went further afield with his exhibits, and scored successes at Birmingham, Brighton, Bath, Exeter, Weston-super-Mare, Taunton, Trowbridge, Liverpool, &c. Of silver cups, gold and silver medals, he won many, generally choosing plate in preference to medals. His powers of endurance must have been great, for there was scarcely a horticultural exhibition of note but he was there competing. For the space of twenty-six years he was at Clarendon Park, leaving there for the suburbs of London, where he commenced the profession of a landscape gardener, and was most successful in his undertakings. Energetic to the last, he may be said to have died at his post, for he was out among his men the day before his death.

Always regarded as an honourable and painstaking judge, his services were in considerable request in that capacity. He leaves a widow; and his son, Mr. J. R. Chard, is widely known as a floral decorator at Stoke Newington. This worthy gardener was laid to rest on the 27th ult.

ENQUIRIES.

Mr. Henry Reid enquires, "What would be the result, if any, to stove and greenhouse plants, Vines, &c., growing in a structure lighted by electricity, supposing all the iron rods for opening ventilators, &c., connected with the said structure, were carrying the current." Will some correspondent kindly afford an answer to his enquiry.

Odd volumes or separate plates of the *Botanical Magazine* or *Botanical Register* are required. Will any reader who has such plates kindly communicate with "Librarian," care of the editor of the *Gardeners' Chronicle.*

ANSWERS TO CORRESPONDENTS

Basic-slag and Kainit as Manures for Tomatos: *E. F. C.* Such a slowly decaying phosphatic manure as basic-slag is scarcely to be recommended for a plant so short-lived as the Tomato, and as the manure is insoluble in water before it decays, it is a wasteful practice to use it. Bone-meal or bone-black are better fertilisers, and good Peruvian guano best of all. Kainit contains potash in the form of sulphate, the average being 12·5 per cent. of actual potash, 23 per cent. of the sulphate, and 33 per cent. of ordinary salt. If its use is intended to benefit the immediate crop, it should be applied several weeks before the crop is planted. Potash is a very suitable manure for the Tomato-plant, especially the late fruiters, which grow to a large size. One application, together with farmyard dung, may reach 2 oz. per square yard.

Books: *E. J.* Manuals on Tomato and Cucumber culture are to be purchased of Mr. Upcott Gill, 170, Strand, W.C. *Select Ferns and Lycopods*, by B. S. Williams, to be had at the Victoria Nurseries, Upper Holloway. *Mushrooms for the Million*, by J. Wright, published at the office of the *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street, E.C.

Broad Beans: *H. W.* The seeds had been inhabited by the grubs of the Bean-weevil (Bruchus granarius), which feeding on the substance of the seeds had caused the malformation of the cotyledons. The browning or rust noted, is, we think, due to frost, and it affects only one side of a plant, that was doubtless more fully exposed to the air-currents during the continuance of the frost. You should examine your seed-Beans, picking out all weevil-infested seeds, and burning them forthwith. You will know them by a small round hole observable in every Bean containing a weevil-grub. The perfect beetle is not found inside of the bean. The plants, or the majority of them, will recover, and afford a crop of pods. Let the rows be moulded up, and, as the garden is a very draughty one, put up some wind-breaks here and there between the rows of Beans, &c, such as sheep-hurdles, evergreen-branches, rows of closely set pea-sticks, &c.

Buyers of Lily of the Valley and Roses: *W. G. B.* We are unable to name any. You might enquire of the chief florists in Covent Garden; or, what is better, advertise them to be sent for cash to private customers, making use of the parcel-post and railway facilities.

Heating Houses: *Economist.* A horticultural builder or the boiler-maker might be able to inform you of the probable quantity of coke required for a year; but we are unable to do so, knowing nothing of the consumption of a Boulton & Paul boiler; moreover, the quantity of fuel burned would in a great measure depend on the character of the winter and spring weather, much less being necessary in mild ones than in severe, and on the stoking.

Horticultural Press: *Alpha.* Appointments of this kind are not numerous, and vacancies do not often occur. You could qualify yourself by writing on matters you personally know something about, or by describing honestly and faithfully what you see, and narrating truthfully what you hear, that is of horticultural interest. If you send matter of this kind to an editor, it is pretty sure to be accepted. Editors are deluged with "copy," but much of it is, from one cause or another, declined. Your letter shows that you write a good handwriting, that you spell well, and express yourself clearly—all points of great importance; but you introduce irrelevant matter, which, supposing it were intended for publication, would be deleted by the editor. We congratulate you on the results of your examination, but no one would suppose, as you seem to imply they would do, that, by reason of your success in the examination-room, you were competent to incur the responsibility of undertaking the cultivation of the plants you wrote about. For that, experience is needed, and you cannot get that by passing an examination. You ought, nevertheless, to gain your experience more thoroughly, speedily, and easily, by having previously been trained and taught what to see, and to what subjects your attention should be directed. We cannot answer your question as to your chances in America, but we believe you might, as you say, enter some of the classes at Cornell or other Universities. Write and ask at headquarters. We cannot answer your question about county councils, but again advise you to apply at headquarters. In the meantime, secure a reputation for diligence and character, and make yourself as useful as you can to your superiors. You will then benefit by the "influence" they very properly exert. Scan the advertising columns, and generally keep a good watch for what may turn up. We have answered you at some length, because the information you seek is often wanted by others, to whom we cannot reply individually.

Lilac: *J. P.* The variety brought from Paris is Syringa japonica, a comparatively recent introduction. Its flowers are white, and need not therefore be forced in darkness to blanch them. The other Lilacs enquired about are Charles X. and the Marly varieties. Last year was unfavourable to Lilacs on the continent, the excessive drought rendering the growth very slow and short, and many cultivators, noting this, afforded the plants water too late, and for too long a time, in late summer and autumn, with the result that a second growth was made, which in many instances failed to ripen, hence the fewness and small size of the blooms this year. Lilacs can be grown in this country to flower as well as those grown abroad if the right kind of attention be afforded. Supposing the plants bought in have been purposely grown for flowering in pots, either forced or otherwise, they should be planted out in May in a very warm spot—a south border in the kitchen-garden is the best in this country, the distance from plant to plant being from 2 to 3 feet, according to size, no manure being employed if the land is in good heart. The balls should be somewhat reduced in size, and some small amount of root-pruning performed, and the remaining roots outside the ball laid in the soil carefully, the latter being firmly packed round about the sides of the ball. The top of the ball need not be put deeper than 1 inch below the surface, and if a slight basin be formed round each it will be all the better in case water has to be applied. All weak wood must be pruned off, and only strong wood allowed to remain then, and during the summer, the object being the production of six to eight good strong flowering shoots of medium length. There must be no stopping of the shoots intended to carry bloom, and all stem-shoots and those coming from the root must be suppressed. No inter-cropping ought to be allowed, and also no mulching, but the surface must be often hoed, so as to permit sun-heat to enter the soil. Ordinarily, water is not wanted after the first month, nor later than the second week in August, but no rule can be laid down in this matter, soils and seasons differing so much. The ordinary Lilac-bush, as grown in nurseries for out-of-door planting, will not do as a pot-plant, as it has, as a rule, received no special treatment, and usually consists of a number of shoots springing from the root, whereas a prepared Lilac-plant has a short clean stem, surmounted by a crown of shoots. For early flowering, the plants should be taken up with root-mass intact as soon as the foliage is ripe, and there is still enough warmth in the air to induce the formation of roots. The pots should be just large enough to take the mass, together with a little fresh soil, the potting being carefully and firmly done, but not so firmly as to injure the roots. Afford water immediately, and stand the potted plants in a half-shaded place. The best kind of soil is heavy loam, rendered porous by the addition of leaf-soil (quarter) and half a peck of sand to a wheel-barrow full of soil. The potted plants may be kept packed in a leaf-bed out-doors, or in a turf-pit.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. C.* Garden-raised Caladiums and Crotons vary so much, that it is impossible for any but a grower to name them.—*Seeds.* The flowers sent are those of seminal varieties of Rhododendron Edgeworthi, R. fragrantissimum, and perhaps, some Himalayan species. Send them to some nurseryman who grows these plants extensively.—*C. W. D.* A species of Viola, probably a white variety of V. odorata, that has been dyed scarlet.—*J. H. B.* We cannot undertake to name varieties of Daffodils. Send them to one of the large trade growers.—*J. H.* 1, Pulmonaria officinalis; 2, Not recognisable; 3, Phlox subulata; 4, Alchemilla arvensis; 5, Lysimachia Nummularia; 6, A species of Helianthemum, Rock Rose.—*S. N.* Hibiscus sp., perhaps H. Abelmoschus. If you will kindly send a better specimen later on, we may be able to speak more definitely.—*C. A. B.* 1, Kerria japonica; 2, Berberis (Mahonia) Aquifolium; 3, Orobus vernus; 4, Ornithogalum nutans; 5, Tulipa sylvestris; 6, Primula cortusoides.—*F. F.* Epimedium pinnatum.—*P. B.* 1, Potamogeton; perhaps P. obtusifolius; 2, Saxifraga cordifolia; 3, Bridgesia spicata; 4, Berberis Darwini; 5, Stachys germanica; 6, Phalaris arundinacea, with variegated leaves.—*D. D.* Pieris floribunda.—*Tester.* 1, Acer platanoides; 2, Forsythia suspensa; 3, Buddleia globosa; 4, Habrothamnus fasciculatus; 5, Populus balsamifera, probably—what a scrap!; 6, Pulmonaria officinalis; 7, Pyrus Malus floribunda.—*Novice.* 1, N. bicolor; 2, Narcissus major; 3, N. telamonius plenus; 4, N. odorus double; 5, N. minor; 6, Lælia superbiens.—*J. D. A.* 1, Dendrobium Devonianum; 2, Dendrobium pulchellum of gardens; 3, Pentas carnea: 4, Selaginella cæsia arborea.—*Mac.* 1, Cyrtomium Fortunei; 2, Pteris argyræa; 3, Pteris tremula; 4, Adiantum formosum; 5, Pteris longifolia; 6, Cyrtomium falcatum.—*J. K.* 1, Oncidium luridum; 2, Cymbidium aloefolium; 3, Oncidium Cavendishianum; 4, Dendrobium Pierardi; 5, Dendrobium thyrsiflorum.—*K. P.* 1, Miltonia flavescens; 2, Oncidium sphacelatum.—*W. A.* 1, Phyllocactus crenatus; 2, Phyllocactus Ackermanni.

Peach-leaves: *W. B.* The silver-leaf disease, the exact cause of which is not known; cut away the diseased portions, grow the plants well, feed well, and try a solution of sulphate of iron (green vitriol), half-an-ounce to two gallons of water.

Pelargonium Constance: *H. & B., Twickenham.* We can find no evidence of disease upon your plant. It is much more likely that the leaves have been withered by some liquid that has been poured over them. The roots and stem are perfectly healthy.

Spotted Leaves: *Thirty-five Years' Subscriber.* The spots on the foliage of Dendrobium sent may have arisen from something unusual or accidental during the past season, the summer of which was unusually trying. If the damage does not arise from disease, the plants may be grown out of it. We do not think it contagious. In Dendrobiums, spot of this kind often appears where the growths have not been properly ripened; and if your remark, "the plants have for many years been grown in the same house," may be taken literally, it would seem to indicate that the cooler resting season had not been observed.

Tomatos in Unheated House: *W. W.* Plant out early in May, and if cold weather at night occurs afterwards you must afford protection, either by covering the roof or the plants.

Vine and Peach Leaves: *G. W.* The leaves sent show scalding, the result of lack of ventilation during a burst of bright sunshine, or from the house remaining closed to a late hour in the morning.

Vines: *J. E. Wing.* The warty under surface shows a want of balance between the air admitted and the aërial moisture in the house. You can remedy this by affording more air, if necessary using fire-heat by day in greater amount. There is no disease.—*W. P.* The leaves are affected with mildew, and you had better make use forthwith of sulphide of potassium, ½ ounce in a gallon of rain-water. The mildew has doubtless killed the tissues of the leaves and berries wherever it has attached itself, and the latter will have to be cut out of the bunches, for the affected parts of the skin ceasing to grow, the berries will split. Maintain a warmer and rather drier air, and paint the heating apparatus with sublimed sulphur, besides keeping this substance mixed with water in saucers placed about the vinery.

Communications Received. – Stanley Edwards.—R. F.—W. J. P.—A. B. W.—Wild Rose.—R. D.—A. D.—H. M.—A. C. F.—R. P. B.—R. W. A.—T. C.—S. A.—E. S.—F. S.—H. A.—T. N.—J. L.—W. Dames.—Anxious One.—H. P. M.—A. F. B.—Sir C. S.—W. B. H.—Molesey.—A. A. D.—T. N., Epsom.—A. M.—R. G. J.—J. L.—R. W.—W. D.—H. P.—J. W. Miller.

Specimens and Photographs Received with Thanks—W. B. H., Cork.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libraries.*

(For Markets and Weather, see p. x.)

THE
Gardeners' Chronicle
No. 645.—SATURDAY, MAY 6, 1899.

BURFORD.

IN speaking or writing of the famous gardens of Sir Trevor Lawrence, Bart., the President of the Royal Horticultural Society, his personal and inherited hobby, the Orchids always present themselves first, and invariably the Burford collection is adjudged the most varied and thoroughly representative collection which has ever been got together, and in which the handsome and rare species both new and old, the curious and botanical, and the garden hybrids, in the production of which Burford has taken such an important part, all take prominent places, and one section is not allowed to encroach detrimentally on the other.

But those who are conversant with the gardens, also know that what is true of the Orchids, is true also of the whole of the gardens, both outdoors and in, for no more truly representative garden probably has ever existed, the skill and care which Mr. W. H. White, the Orchid-grower, bestows on the Orchids being equalled by the diligent attention given by Mr. W. Bain, the gardener to the rest of the garden, in which at all seasons the best plants of the period are to be found grown up to their very best condition.

We call to mind the many different garden scenes, varying with the season, which we have seen at Burford, each differing widely from the other, but all having the constant feature of the pleasant homestead nestling in the nook formed by Boxhill, whose rugged and chalky face, studded with the Gueldres Rose, Box-bushes, and other low shrubs, imparts a stately natural beauty, which Art could imitate, but not rival.

At the entrance-lodge the tall, straight-stemmed trees, the lower part of whose trunks are clad with Ivy, a carpeting of which, studded with low Yew-bushes and Butcher's Broom, form another pretty feature; and the carriage-drive, with its rows of pyramidal Cupressus Lawsoniana, serve to give an admirable contrast to the larger trees in the pleasure-ground beyond.

In the gardens around the house in the summer-time the central basin has a fine show of the new coloured Water-Lilies, and Tuberous Begonias, Cannas and other bright flowers, make an effective display. The gardens outside the plant-houses are trial-grounds, into which all well-accredited novelties, both of shrubby plants and bulbs or annuals, are admitted, and if they are not up to the standard, they are soon destroyed; but if of merit superior to any of their class, a stock is quickly worked up sufficient to show the subject at its best during the next year, and with the skilful culture given it here, many a novelty springs into notoriety. Recently the Narcissus, Scillas, Chionodoxa, Snowdrop, and other spring bulbs supplied the chief of the outdoor flowers.

Nearer the plant-houses is a pretty rugged dell, the sides clad with Ivy, Ferns, and dwarf Box bushes, and from the bottom of which spread lofty trees, which give a grateful shade in summer.

THE ORCHID-HOUSES

have their best show now made by the Dendrobiums, many of the hybrids being raised at Burford. In the large warm-house, one side had a very fine show, in which the Burford type of Dendrobium × Wiganiæ gave an admirable illustration of the beauty and variety to be obtained by the hybridist using exceptionally fine varieties to seed from. The many plants of it in bloom showed it to be of very free habit, the stems of some being over 3 feet long, and furnished with bloom the greater part of their length. One handsome form, D. × W. xanthochilum, had bright dark yellow flowers with purple eye, and was even richer in colour than D. signatum, one of the parents; while other forms closely approached D. nobile, the other agent used, and might be mistaken for a yellow-tinted D. nobile.

Other instances of exceptional beauty in hybrids were evidenced in the Burford-raised D. × Juno, D. × Euterpe, D. × melanodiscum, D. × Aurora, and D. × Clio. Other hybrids finely in bloom were Dendrobium × Cordelia, with ten growths; D. × Rolfeæ, D. × Aspasia, many varieties of D. × Burfordiense, D. × splendidissimum grandiflorum, D. × Euryclea, and many others; and among the species, D. nobile nobilius, D. n. Sanderianum, D. n. Murrhiniacum, and other varieties of D. nobile; D. lasioglossum, D. Falconeri giganteum, D. aggregatum, D. subclausum, D. Capillipes, D. albo-sanguineum, D. cucullatum giganteum, D. Johannis, D. superbum giganteum, D. Dalhousieanum, D. tortile, D. crepidatum, D. secundum, and D. s. album; and among the species not yet flowered, plants of the Mysore D. Jerdonianum, a singular red-flowered species, and others of great interest.

On the other side of the house is a bank of large specimens of the warm-house Cypripediums, many of which are in bloom, and on those of marbled foliage like C. Lawrenceanum, their beautiful foliage is enough to warrant the care bestowed on them. The centre of interest, perhaps, is the fine plant of Cypripedium Stonei platytænium (fig. 104, p. 281), which has attracted so many admirers whenever it has flowered, and whose history since its first appearance in Mr. Day's collection as a chance imported plant in 1867, demonstrated how a beautiful and well defined variation may increase in favour and proportionately in value in spite of the many other novelties annually distributed. Nothing yet has appeared like C. Stonei platytænium and probably were the plants in Sir Trevor Lawrence's and Baron Schroder's collection put on the market, it would be found that nothing had attained their value. The plant from which the illustration was taken has five growths. In the case of the plant in question there is reason for coveting it for its stately cream-white rose-crimson marked flowers, are striking and beautiful, even to those who know not its value. In the fine bank of plants in bloom are large specimens of the typical C. Stonei, C. Rothschildianum, with two strong spikes of five flowers; C. Chamberlainianum, C. × Winnianum, C. Mastersianum (fig. 101, p. 274), &c. At one end is a healthy collection of Phalænopsis, some of them in bloom; and overhead a splendid collection of Bulbophyllums, Cirrhopetalums, Megacliniums, and allied species, which are also giving their share of interesting subjects in flower, one of the most remarkable being the sensitive feathery-lipped B. barbigerum.

The Odontoglossums are in splendid condition, and in their culture at Burford the large new Odontoglossum-house has been a great acquisition. When necessity involved the keeping of the plants in other houses not specially constructed for them, the most constant vigilance was required to keep them up to the mark, but since the fresh arrangements have been made the Odontoglossums grow in the most satisfactory manner, their stout, sleek pseudo-bulbs and fleshy green leaves being pleasant to behold, even when not in flower. Here, as in a few other places of late, it has been the practice to abandon the crocking the pots for Odontoglossums as far as possible, the drainage being supplied by the Bracken-rhizomes in the peat, which in many places has been previously wasted. The best results have arisen, for the plants take to the material, which is a natural vehicle for moisture. In flower are some fine forms of O. crispum, both white and spotted; some grand O. Halli, one fine form having a spike of sixteen flowers, while another has an inflorescence over 6 feet, and bearing eight branches. Also in bloom are some fine violet-coloured O. Edwardi, O. mulus, O. prionopetalon, O. Wilckeanum, O. luteo-purpureum, and some magnificent dark forms of O. luteo-purpureum. In these cool-houses, too, the many plants of O. varicosum, O. concolor, and other highland species thrive well, the O. concolor sending out spikes freely.

The Masdevallias have never given any trouble at Burford, their compact cool house having always suited them well, and the outcome of clean unspotted foliage and a profusion of flowers resulted. Of those in flower in more or less quantity were remarked varieties of M. ignea, and M. coccinea, M. Veitchiana, M. × falcata, M. triangularis, M. polysticta, M. caloptera, M. × Parlatoreana, M. × Hincksiana, M. × Shuttryana and variety Chamberlainiana, M. Armini, M. Shuttleworthi and variety xanthocorys, M. × Gelengiana, M. × Courtauldiana, M. × Asmodia, M. Sororia, M. maculata, &c.; and among the singular small-growing species, M. Simula, and the rare M. O'Brieniana. Here, too, the singular Pleurothallis, Octomerias, and Stelis are accommodated, some of them nearly always in flower.

Of the other great sections cultivated at Burford, the Cattleyas and Lælias have the least in flower at the present time, contributing only some of the smaller species, although among the Cattleyas a few bright specimens of C. Lawrenceana, one of them bearing sixteen fine flowers, tell what a fine species it is when properly grown. A plant also of C. × Lawre-Mossiæ show that its good properties may be communicated. Among those to flower later are the fine white Cattleya Mossiæ Wagneri, with five flower-sheaths; C. intermedia alba, &c.; and among the hybrids in bloom are Lælio-Cattleya × The Hon. Mrs. Astor, with charming yellowish, rose-tinted flowers, and one or two others.

In the large house, the centre table of which is occupied by the showy Sobralias, the remarkable collection of Epidendrums which always give interesting things in bloom, have now open the pretty and rare E. Endresii with several heads of white and violet flowers. Dipping in rain-water overhead several times a week and lightly sponging the leaves, is here said to ensure success with this beautiful little plant. With it are its hybrids, E. × Endresio-Wallisii, E. × elegantulum and its variety leucochilum, and also their parent E. Wallisii. With them are E. tridactylum, E. Jurgenseni, E. Schomburgki, E. × xantho-radicans, and some other red-flowered hybrids; E. × O'Brieniana, E. diffusum, E. fuscatum, E. polybulbon, and other singular and pretty species. One side is occupied by a fine bank of Miltonia vexillaria in splendid condition, with M. × Bleuana well in flower. Beside them are a fine batch of M. Roezli in grand order, with a few in flower; and a lot of M. Phalænopsis, which are flourishing unusually well, for it often gives trouble. Then comes the collection of Cœlogynes, with a fine mass of C. conferta and others in bloom. In the warm seedling-house a very interesting lot of hybrids are coming on, and in other parts in bloom are Bifrenaria Harrisoniæ, and its yellow variety; some Lycastes, Zygopetalum Clayii, the fine scarlet Epiphronitis × Veitchi (one of the most satis-

factory of hybrids), Dendrobium Kingianum and D. K. album, Catasetum Warscewiczii, Maxillaria Houtteana, and, as usual at Burford, a great number of things which cannot be recorded.

In the Anthurium-house is a good show of A. Scherzerianum, and the white, scarlet-spotted varieties of it raised at Burford, and in the greenhouse a good show of spring flowers.

WHEAT AND TULIPS.*

(*Continued from p. 257.*)

THE primitive home of the genus Tulipa is without doubt to be sought in the East, and almost every species is there indigenous, and only T. sylvestris and T. Celsiana had spread over the whole of South-western Europe in prehistoric times. Various forms may have wandered in various directions round the Mediterranean basin, and most of them, as so many other Mediterranean plants, may have followed the African coast. Two members of the group, viz., Tulipa fragrans and T. primulina, remained African; and another, viz., T. transtagana crossed to the Iberian peninsula. The isolation of T. sylvestris in Greece and Sicily must be due, the author thinks, to their disappearance in Asia Minor and Northern Africa.

The views expressed in regard to the distribution of the genus are admitted to be hypothetical, and the surest proof would be without doubt an exact and careful investigation of the spread of the yellow Tulip in the Balkan peninsula, in which manner the members of the genus have wandered north and south. We must wait a long time for this being carried out with living plants, and the difficulty of determining species in the dried state.

With regard to the red-coloured and variegated Tulips, these were not found in Europe before 1559, although there are faint traces of an earlier acquaintance with them. In the museum of the Vatican an antique mosaic shows a flower-basket, in which, by the unanimous verdict of various botanists and others, what are nothing less than red Tulips are portrayed among other flowers. Still, as the Tulip does not occur in any other antique wall mosaics that have come down to our day, one must be careful in their use as a proof of the existence of the red Tulip in Europe. The mosaic in question was discovered about the end of the last century in the garden of some villa of the Roma vecchia, at a spot between Porta San Sebastiano and Cecilia Metella. If it is in its original completeness, or has been restored by a modern artist, is not known, though such occurrences are not uncommon. Moreover, mosaics being costly objects, were often carried by their possessors from place to place, and the one in the Vatican may have been made in some Eastern land—in Asia Minor, or Syria, where the red Tulip is a field flower.

In the 17th century, red Tulips were common plants, and they may be divided by historical evidence into the two sections, Palæo and Neo-tulipæ. In the case of the former we note the commencement of acclimatation similarly to T. sylvestris in the 18th century after being brought as a decorative garden plant in the previous century from the East.

The Neo-tulipæ came into Europe suddenly and naturally in the present century, and there are no literary data relating to them.

Among the older forms, Tulipa Clusiana is mentioned as being of very extensive distribution at the present time, reaching from Schiraz and Syria through the Grecian Archipelago, Italy, Southern France, and as far as Spain and Portugal; but within these borders, the places where it is found in any abundance are much scattered and isolated. The species was known by Clusius and his successors as T. persica præcox; also by Parkinson and Ray. It is a species much more liable to be influenced by its surroundings than T. sylvestris; and, on the other hand, owing to the abundance of its progeny, it has overrun as large an area as that species, and even the most northerly parts of its home, as in a vineyard near St. Pierre d'Albegny, in Savoy; and in a plantation near Biviers by Grenoble great quantities of the plant have been found, and the cultivators have been at great pains to destroy it as an injurious weed, and so far with apparent success.

The second place among the old Tulips belongs to the fine Tulipa oculus solis St. Amans, which is confined to-day to Italy and France on one side, and to Syria (Aleppo) on the other side. In the countries lying betwixt these, it is, so far as we know, non-existent. According to Reboul first, and Mattei later, this species was cultivated in Dutch gardens in the time of Clusius. It appears to the author that it was T. oculus solis St. Amans which Parkinson had in mind, and not T. præcox when he described "but the leaves here are alwayes long and somewhat narrow, having a large black bottome, made like unto a cheurne, the point whereof riseth up unto the middle of the leafe, higher than any other Tulipa." Cheurne being a form of the word chevern; and, in fact, the form of the basal spot agrees to a certain extent with that of a little fish, and that, more by T. oculus solis than T. præcox, whilst the pleasant fragrance is absent from both the species in question.

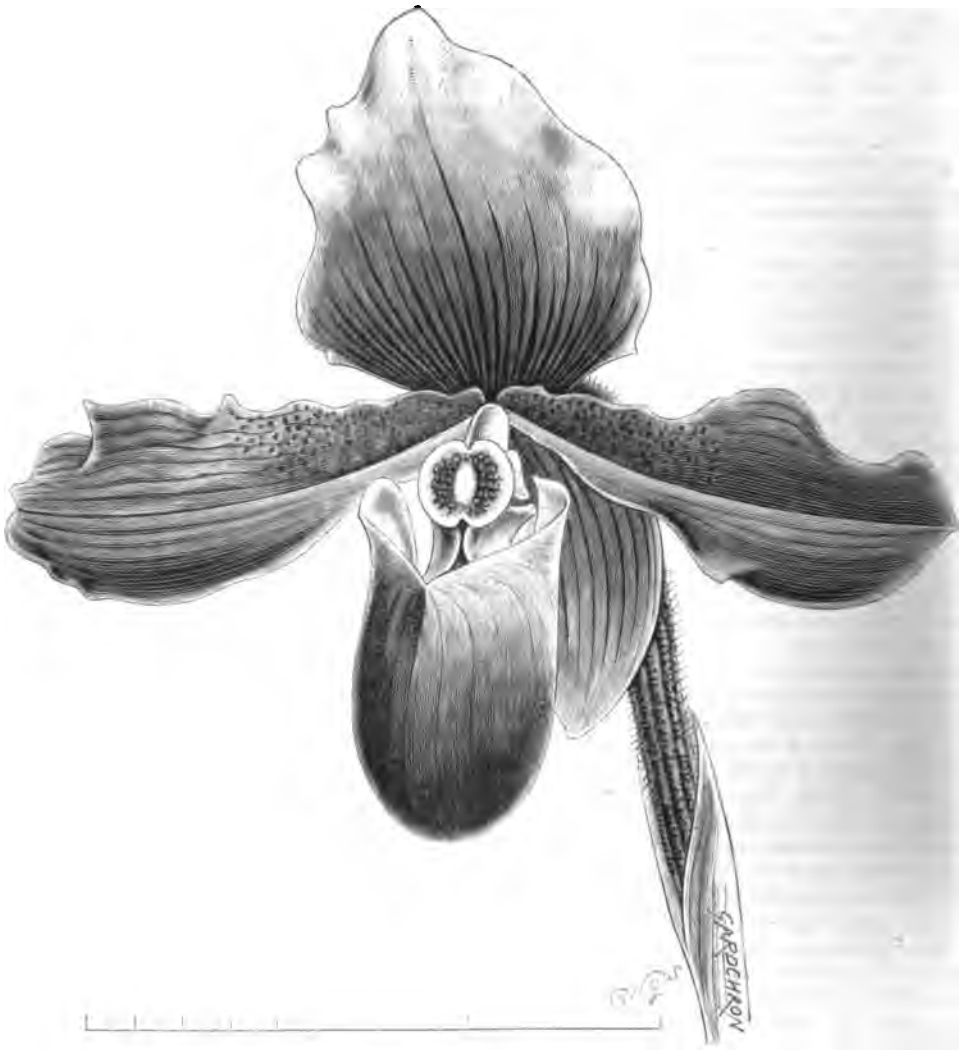

FIG. 101.—CYPRIPEDIUM MASTERSIANUM. (SEE P. 273.)

As early as 1636, a Tulip which was either T. oculus solis or T. præcox, was in cultivation at Paris, as Simon Pauli's catalogue of the gardens there contains a description of a *T. pyrisina sen bombycina medio flore rubro unguibus purpureis sulfureo circulo cinctis*. The plant was found in cultivated fields, by the borders of roads, at St. Amans, near Agen, in southern France, in the early part of the present century, and was described in *Recueil de la Soc. Agricole d'Agen*, and also in the *Flore Agenaise* in 1821. Possibly it existed in Southern France still earlier, at least as early as 1715, in the vicinity of Aix, in Provence. At the present time it is a form met with in many places. There cannot be any doubt as to its eastern origin, but the

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[*] *Weizen und Tulpe und deren Geschichte*, von H. Grafen zu Solms-Laubach, Professor der Botanik an der Universitat, Strasburg. (Leipzig: Verlag von Arthur Felix, 1899.)

precise locality is uncertain, as it is only found on cultivated land.

Quite recently the firm of Dammann & Co., of San Teduccio, near Naples, have introduced a species found near Arnasia, in Pontus, its natural habitat, under the name of T. Dammanniana, a name that is unfortunate, seeing that Regel discovered a quite different species in Turkestan which he described as T. Dammanni. This T. Dammanniana grown in a garden at Strasburg appears more insignificant than T. oculus solis, although resembling it in all essential particulars; and the author agrees with Mattei that it is the primitive form of our cultivated plant.

The most abundant red-flowered Tulip of Italy is T. præcox, which has been known since 1811. The new Tulips which the author now undertakes to find the origin of, are very remarkable appearances in the European flora. They cannot be identified with Oriental species, and they appeared suddenly in well-known floricultural centres, "like a maiden from abroad," without anyone asking or making a note about their origin. The most remarkable fact is their distribution. The majority are found in groups together in the vicinity of inhabited places, especially near Florence, Bologna, and St. Jean de Maurienne in Savoy.

The first of these forms T. connivens, and T. strangulata var. Bonarotiana, were found by Reboul, in 1822, at Florence. In 1823 came T. maleolens, serotina, strangulata, variopicta, and neglecta, in the same district. There are several others found in the above-named places which cannot be identified with any known wild species, although T. strangulata is regarded as coming near to the Greek species, T. bœotica.

(*To be continued.*)

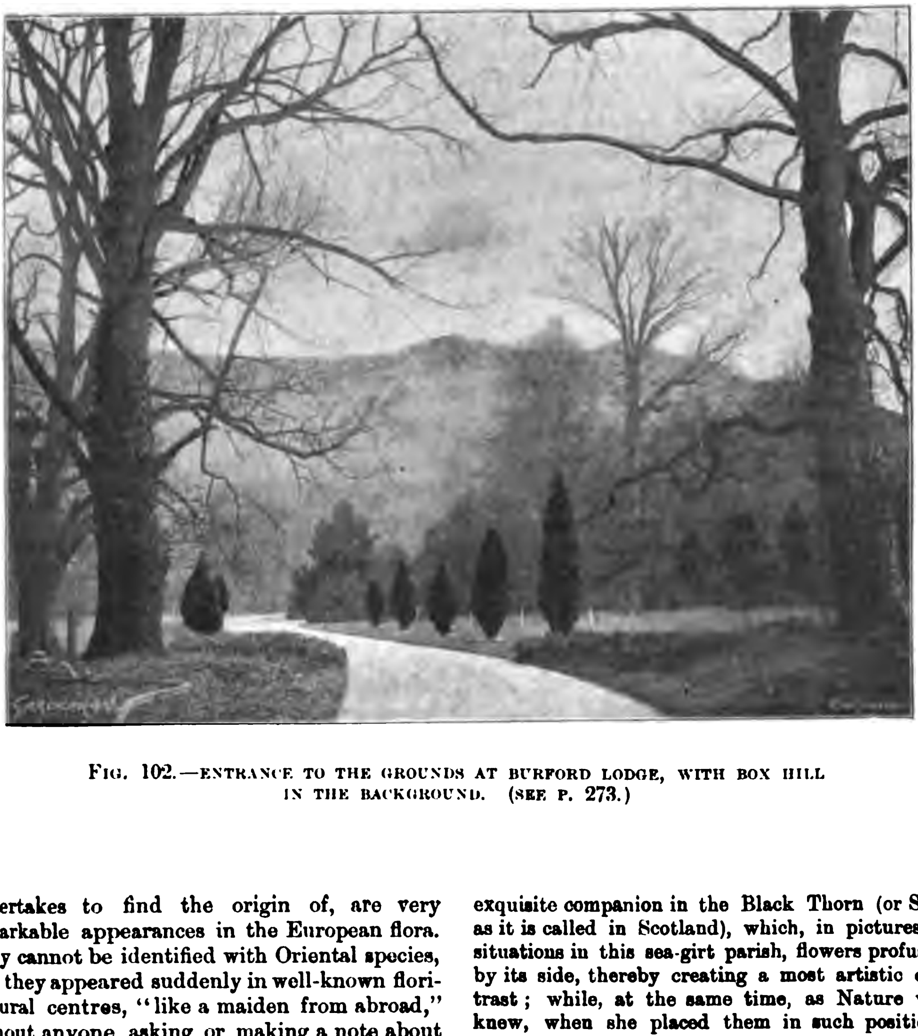


Fig. 102.—Entrance to the grounds at Burford Lodge, with Box Hill in the background. (See p. 273.)

NOTES FROM A SCOTTISH MANSE.

This season might expressly be called the period of Nature's transfiguration. Since last I wrote to the *Gardeners' Chronicle*, her aspect has undergone under the influence of more inspiring atmospheric conditions, a most marvellous change, and the trees at that period so bleak and naked in their outward appearance, though full of embryonic hope and capability, have assumed their tender and delicately-tinted leaves at the touch of the mighty magician of the spring. Primroses in millions make yellow the deep glens, or the green slopes above the shore. In the woodlands, Scilla nutans, one of the loveliest and most fragrant of the manifold gifts of early summer, is preparing the revelation of its luxuriant bloom. Nothing is more beautiful at present than the Gorse, so much admired by the great Linnæus, some of whose hues rival those of the Maréchal Niel Rose. It has an exquisite companion in the Black Thorn (or Sloe, as it is called in Scotland), which, in picturesque situations in this sea-girt parish, flowers profusely by its side, thereby creating a most artistic contrast; while, at the same time, as Nature well knew, when she placed them in such positions, their colours harmonise.

Our gardens are also at the present period supremely attractive. My only Almond tree, a very fine standard of graceful form, is a mass of blossoms, which are seen to most advantage from the upper windows of the manse. I was informed yesterday by a visitor to my garden, a native of Chili, that in South America its blossoms are pure white. The Early Rivers, Czar, and "Denniston Superb Green Gage" Plums are blooming superbly; so also are the Early Rivers and Black Eagle Cherries, which seldom fail to blossom well. I have, *mirabile dictu*, the Irish Peach-Apple (April 27) in flower. Its usual time of flowering at Waltham Cross, in Hertfordshire, is given by Mr. Wm. Paul, in his valuable work entitled *Contributions to Horticulture*, as May 1. Other varieties, such as the American Mother Apple and the Duchess of Oldenburg, are almost equally far advanced, and will soon be in bloom; the latter, which is greatly cultivated and much esteemed by my friend Mr. Thos. F. Rivers, of Sawbridgeworth, is one of the most valuable Apples in cultivation. The Beauty of Bath, though charming in colour, I have not found so entirely trustworthy, though elsewhere, I doubt not, it may have proved a greater success. It is possible that in my own garden it may not have found a congenial soil, but I fear its constitution is not very strong. A more vigorous variety is the Early Strawberry, which is also very ornamental, by reason of its rich complexion during the autumnal months.

Our gardens will soon reach the climax of their beauty, for there is nothing more beautiful within the realms of nature than the Apple-trees in perfect and glorious bloom. The exquisite season of Violas and Auriculas, precious alike for perfume and their capability of massive floral effect, has already begun. The Violas chiefly admired and cultivated here are almost wholly of the miniature, richly fragrant, profusely flowering, "Violetta" type. But I also grow several of the larger and older kinds, such as the Countess of Kintore, Iona, one of her most charming variations; Prince of Orange, Florizel (one of Dr. Stuart's finest introductions), the graceful white Duchess, and Countess of Wharncliffe. Mr. Wm. Cuthbertson's Blue Bedder, recently raised at Rothesay, is a great acquisition.

During last winter I added to my already extensive collection of Lilies, the two latest introductions from America and Japan, viz., the Burbank Lily, raised by the American hybridist of that name; and Lilium rubellum, described by Mr. Baker, of Kew, in the *Gardeners' Chronicle*, May 28, 1898, fig. 128; which, by reason of its deep pink colour and greater reliability (though the flowers, I believe, are considerably smaller), seems not unlikely eventually to supersede that older and more familiar Japanese variety, Lilium Krameri, of which the latter, as I know from long experience, is somewhat difficult to cultivate, and even when successful fails to generate offsets, and seldom lasts longer than two years. Lilium rubellum, in the opinion of Dr. Wallace of Colchester, has a more vigorous constitution than its beautiful predecessor, Lilium Krameri, and even when its bulbs are of very small dimensions, seldom fails to bloom. Its reliability, indeed, seems to be one of its most valuable characteristics. It should therefore prove an important addition to those floral treasures which have been introduced into our British gardens from the East, and from the West.

The new American hybrid, which might classically be styled Lilium Burbanki ×, is the result of a cross between two noble species, viz., the deeply fragrant, lilacy-white Lilium Washingtonianum, and the majestic Panther Lily of California, Lilium pardalinum. With such a highly distinguished parentage, it can hardly fail to prove an interesting production. Its colour is orange-yellow, spotted with maroon. *David R. Williamson.*

PLANT NOTES.

CRINUM BALFOURI.

This is the first of a batch of bulbs lately brought home by Dr. Henry O. Forbes from his recent expedition to the Island of Socotra, and presented to the Edinburgh Botanic Gardens. The plant bears an umbel of twenty-two flowers, strongly fragrant, the scape being about 20 inches high. Individually, the blooms are about 4 inches across, white with a tinge of pink, this colour also tipping the style and filaments. The leaves are said to be much shorter than those of most Crinums. The figure in *Bot. Mag.*, t. 6570, must have been prepared from a small specimen of this species brought home by Professor Balfour in 1880. Some of the bulk now to hand are 8 inches in diameter, and round in shape, the flowers appearing before the foliage. An intermediate temperature, such as that required for Begonia socotrana, should suit this plant, and it is certainly worthy a place in our greenhouses for its fragrance alone, which is sufficient to fill the house in which it is grown. *R. L. Harrow, Edinburgh.*

ABUTILON SAWITZII.

At the present time I have a batch of beautifully marked, symmetrically-formed plants of this new Abutilon in 5-inch pots. The height of these variegated-leaved plants, from the rim of the pots, ranges from 10 to 15 inches. They were struck from cuttings inserted last August, and have been grown in a warm temperate-house during the winter. They have not been pinched. I find if the leader be taken out, a number of thin weakly shoots are produced, and the contour of the plant is not nearly so fine as when grown naturally throughout. The variegation is equally good in the case of unstopped plants.

Small plants in 3-inch pots of this Abutilon are useful as "dot" plants upon the dinner-table, being particularly bright under artificial light. In well-grown specimens the white variegation largely predominates over the green colour in the foliage. I have not yet grown the plant under such cool treatment as variegated Abutilons are generally given, but it is evident that the temperature we have employed is a suitable one, although a cooler one may answer. I have a doubt if the plants would thrive in a temperature below 50°, for the variety is not nearly so robust as A. Thompsoni, A. vexillarium, and others. If A. Sawitzii could be utilised for bedding purposes as are those named, it would be a gem in the flower-garden, as it certainly is when used for decoration of rooms. The plant was distributed several years since by Messrs. Sander & Co., St. Albans. *H. T. Martin, Stoneleigh Abbey.*

SOUTH AFRICAN NOTES.

JOHANNESBURG.

JOHANNESBURG is situated in the heart of South Africa, 6000 feet above the sea-level, and very nearly in the same latitude as Delagoa Bay, the southern point of Madagascar and Brisbane. The maximum heat I have registered in six years has been 93°, and the minimum 20° Fahr., thermometer under a regulation shaded screen 4 feet from the ground in both cases. The winter and spring are dry and cold, summer and autumn wet and warm. The rainfall, which varies year by year a little above and below 28 inches, falls between the summer months of October and March; the remaining months are practically rainless. Rain often falls so heavily—I have registered 2·42 inches in one night—that a great portion rushes away, and is lost. We have many light showers, which, although they make a respectable contribution when carefully measured, yet in practice they aid vegetation very little, owing to the very rapid evaporation. Vast stores of water exist below the ground in many places at from 50 to 100 feet. These are being utilised now. On every Dutch farm a spring is to be found; and wherever the flat high veld breaks, descends into the valleys. The springs often flow with great strength. There are several within a radius of 50 miles from here which yield from 1,000,000 to 20,000,000 gallons of pure water daily.

Geographically, this town is exactly on the dividing ridge of the water-shed of South Africa, for close to where I am writing, on one side a spring discharges itself into the Limpopo, and so on to the Indian Ocean; on the other side, another spring flows into the Vaal River, and thence to the Atlantic. On the slopes below the hills the soil is a very deep, sandy, alluvial loam, in some places over 200 feet deep, resting on gravel and granite. Lower down in the valleys we come on a black loam, with pottery clay below. Ten years ago the site of the town was a grassy slope, dotted with dwarf Proteas and Acacias, with no outward sign of the gold which lay below. Our mines have increased to such an extent that the monthly yield is 400,000 ounces of gold, equal to £50,000 each day! The total value of the gold in our great reef is said to be £1,000,000,000 sterling, but the working costs are about 50 per cent. A very short note on the origin of this gold deposit, which is fast changing South Africa, may be admitted here.

Imagine ten thousand ages ago a very large inland, shallow, salt-water lake where I am now writing. The water of this lake was strongly charged with gold, which is nothing extraordinary, as all salt water contains gold in a slight degree. Gradually the lake dried up, and the gold, as fine as flour, sank into the sandy bed; one side of this dry lake-bed sank down some 5000 feet, leaving the edge of the opposite side standing up, and formed the main reef. Great changes took place; the valley where the lake was silted up with sand and shale and mud, brought down by a great river. Ages afterwards, forests of Tree-Ferns and giant mosses covered many parts of the Transvaal, and these being buried were converted into coal, without which it would have been practically impossible to work the mines of gold. Gold and coal alike lay buried deep below the ground, unseen and unsuspected, until the present age. *R. W. Adlam, Joubert Park, Johannesburg.*

(To be continued.)

THE ROSARY.

FORTUNE'S YELLOW AND SUNRISE.

SOME years ago, a provincial nurseryman introduced a Rose which he called "Beauty of Glazenwood;" it is a climbing Rose, of rambling habit, and a profuse bloomer, and after some time it was discovered to be an old friend called Fortune's Yellow. This Rose appears to have been introduced by Mr. Robert Fortune from China, and for some cause or other it was but little cultivated until it came into the possession of the nurseryman who sent it out into the world as Beauty of Glazenwood. It is very rich in colour, being deep yellow, and curiously flaked and striped with dark red, a combination which forcibly reminds one of the Austrian Copper.

Sunrise, is a beautiful "gain" of Mr. Piper's, of Uckfield; it is a brilliant orange-yellow flower, with the back of the petals rosy-pink, of excellent form, and very free-flowering. It was shown in fine condition at the Royal Horticultural Society's meeting on May 2.

PROSPECTS OF THE ROSE SEASON.

It is perhaps somewhat early to descant upon this subject, yet as bud-shoots begin to start forth, one is tempted to say something. There are two lines of thought which come into the Rose-grower's mind as he looks forward to the season's outcome, the first being in what condition shall we find our old-established favourites? and the second, what new varieties are likely to be added to our list? With regard to the first thought, I fear the prospect is not of the brightest. Of course, I am aware how circumstances vary in different localities, and what may be true of our South-eastern corner of England, may not be true of the West, Midlands and North.

On looking through my small collection of Roses, consisting of Hybrid Perpetuals, Hybrid Teas, and Teas, I find that the cold weather at the latter end of March most seriously affected them. We had as much as 12° of frost, and as the sap at that period was rising rapidly, it hit the Roses very hard; not only were the young shoots scalded, but the wood I had not pruned was injured. Nor was it a question whether I should prune hard or not, for the frost had already settled that, and I had to cut down pretty low to get rid of the injured wood. I found this was alike in all three classes; indeed, I fancy that the Teas are not so much injured as the H. P.'s. I am not alone in suffering this injury, for I have been talking lately with several Rose friends, and they have the same story to tell; but I have just received a letter from one of our champion Tea Rose growers in East Anglia, who says he does not think he ever saw such firm, stout wood as he has on his Teas this year. It must ever be remembered that it is the amateur who especially suffers in such cases, for the nurseryman, who has his various quarters in different aspects, and on many different stocks, is pretty sure in some way or other to partially escape.

There is little to be done now to ward off any loss, and we must hope that no further untoward circumstances may occur. The demand for Rose plants has been exceptionally large, and it is pleasant to know that our American cousins are our very good customers. I do not think there will be any diminution in the number of our exhibitors, but that many will come forward to take the place of those who, from one cause or another, may have left our ranks. Few persons are aware what a strain Rose exhibiting is to those who enter thoroughly into it. The exhibitions, it is true, occupy but three weeks; but what busy weeks these are!—travelling night and day, snatching a hasty meal whenever it can be had, at the risk of indigestion; sleeping in uneasy positions in railway-carriages, and arriving at stations at unearthly hours, what wonder is it that the most enthusiastic exhibitors, after a few years, grow tired, and thus one after another we have seen our most prominent men throwing up the sponge. "No thank you," when one asked the question "Won't you exhibit again?" "No, thank you, I have had enough of it." So changes are taking place, especially among our largest exhibitors. *Wild Rose.*

VEGETABLES.

FRENCH BEANS: VEITCH'S EARLY FAVOURITE AND SUTTON'S MAGNUM BONUM.

WHERE a succession of dwarf Beans is required through the winter and spring, the above varieties are very useful to follow the pot varieties, such as Sion House, Osborn's Prolific, Mohawk or Six Weeks, and Ne Plus Ultra.

We sowed Early Favourite at the end of January in a bed in a span-roofed house, with little or no fire-heat, and have been gathering Beans for the last month. These have been abundant, and of splendid flavour and quality; they promise to give a good supply for some time to come. Magnum Bonum was sown in the same house three weeks later, and is just swelling-off the first fruits. This variety has grown some 8 or 9 inches taller than Early Favourite, and the pods are of excellent length and substance. These varieties require to be sown very thinly, and to be given restricted root-room, as they are very robust-growing, and are liable to damp if the temperature be too low when the flowers are setting. One of the best manures for French Beans is sheep-droppings. *A. B. Wadds, Paddockhurst Gardens, Sussex.*

SPONTANEOUS HYBRIDS OF HARDY PLANTS.

(Concluded from p. 260.)

AMONGST garden forms of perennial Sunflowers, it is often difficult to fix the type of the species, still more to recognise the parents of the hybrid forms. I have found so much uncertainty about the names, that I believe some of the best and commonest forms are hybrids, perhaps between Helianthus rigidus (a very broad name) and H. doronicoides; but I feel no doubt that many of the allied species readily form hybrids, and that many of these hybrids retain their fertility, producing a variable offspring. In annual Sunflowers, a friend once sent me ten seeds, saved from a handsome hybrid plant, obviously between H. annuus and H. debilis var. cucumerifolius. These seeds all grew, and divided themselves fairly between the parents, five belonging to each type. This year, Mr. Lynch, of Cambridge, has sent me seeds of a hybrid between H. annuus and H. argophyllus; they are already up, and will probably revert in a similar way.

Like the Sunflowers, the North American Asters make many hybrids, which are often for the same reasons hard to recognise. Sometimes, however, they are well marked, as when the plumes of small flowers of A. cordifolius have to make a compromise with the large flowers and lanceolate leaves of A. lævis or A. novi-Belgii. In both these cases the result is good in making distinct and ornamental varieties. Other excellent garden forms, such as W. J. Grant, and Coombe Fishacre, are certainly hybrids of uncertain parentage. No definite rule can be laid down as to their fertility. Some make good seed, and I have found that in Aster it is never safe to pronounce seed barren without a fair trial. The European Aster Amellus presumably was the pollen-parent of the best hybrid Aster which ever came in Edge garden, the seed-parent being the Himalayan A. Thomsoni. It is almost a complete inversion, the flower and habit being very near A. Amellus. It is the only one of the kind I have seen, and by careful division I have raised and distributed several plants. Its chief merit is its very long flowering season, lasting from July to October. Another hybrid which goes on being produced from the same plant of A. Thomsoni every year, sowing itself near the parent, is between that species and A. pyrenæus, which grows all round it. The flowers are always intermediate, especially in the form of the pappus, but vary in merit, being only in a few cases better than either parent.

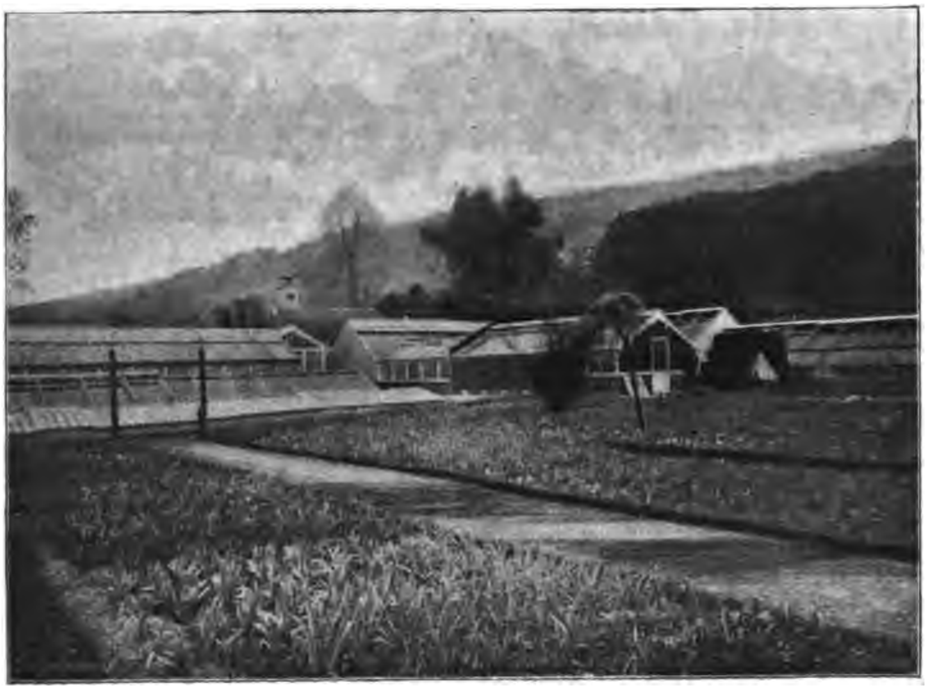


FIG. 103.—SOME OF THE HOUSES IN THE GARDENS AT BURFORD LODGE, DORKING. (SEE P. 273.)

Heuchera sanguinea forms hybrids freely. The first I noticed was six years ago, when a plant growing by the side of the parent produced pale pink flowers. On examination these proved to be evidently a cross with H. cylindrica, which grew near. The hybrid ripened a little seed, which grew and flowered, some being darker than the hybrid parent, others nearly white. They have no new merit, but are a curious nondescript set. About the same time near other plants of H. sanguinea, I noticed two plants with the brown shiny leaves of H. hispida (syn. Richardsoni), these produced loose panicles of pale pink flowers and ripened seed, which I believe I have sown, but I can hardly call them interesting, so pay little attention to them. I think I have seen a similar hybrid offered in nurseries as H. brizoides. If the two hybrids I have described have any merit, it is in being much more hardy and more free flowering than the seed parent. The frosts at the end of last March have nearly destroyed H. sanguinea in exposed parts of the garden, but the hybrids are unhurt.

I may mention a very pretty and elegant hybrid, unfortunately not robust, but now flowering for the third season, Ranunculus amplexicaulis × R. gramineus, leaves and flowers, in colour and form, are honestly intermediate. It produces a few seeds, and three or four seedlings will soon flower. Malva Alcea and M. moschata, both pink and white, seem to coalesce into a mixed lot, which I am unable to discriminate, though I admit that I do not judge by any definite characters.

Herbaceous Veronicas are very erratic in their characters when grown from cultivated seed. The tiny wild native V. spicata soon passes into forms 2 feet high. One of them produced a very handsome hybrid with V. incana, of which I accidentally came across an exact portrait in Sweet's *English Flower Garden*, named V. neglecta, which no doubt had the same origin. Also the very distinct form of V. virginica, called in nurseries V. sibirica, crosses spontaneously with the type, forming tall, straight spikes of pale purple, better than either parent.

I must not close the subject without speaking of one more hybrid—Lychnis coronaria × L. Flos-Jovis. This came, I believe, spontaneously, many years ago in the town-garden at Chester of my friend, Mr. A. O. Walker, who gave it to me. It is exceedingly robust, growing from any scrap, even although rootless. It has a very prolonged flowering period, and produces a few seeds which I have never taken the trouble to test. The colour, however, being magenta-crimson is proscribed by artists; and if by a few renewed trials of the same cross the hybrid could be produced with the pure pink flowers of L. Flos-Jovis, it would make a valuable decorative-plant. *C. Wolley Dod, Edge Hall, Malpas.*

THE LILIES OF THE SIERRA NEVADA.

LILIUM PARDALINUM, Kellogg. — The excessive dryness of the Sierra foot-hills drives this moisture-loving Lily into the cañons and ravines. Even there in places where it was once plentiful, and gathered in magnificent bunches by those arriving in the "days of '49," it has become rarer and rarer, till now we have to climb amongst rocks and dig in deep deposits of loam to secure this bright Tiger Lily. I have found its stalks as high as 6 feet, nodding over precipices, or standing upright and displaying from one to six or seven flowers. Wherever found, it inhabits bright, sunny spots, and delights us by its fresh and clear colour of orange, often washed with deep brownish-red. The spots of deep maroon are very thick (and yet distinct from each other) on a lighter ground-colour of orange.

Thus distributed, I have found L. pardalinum from 1000 feet up to 4000 feet. At the latter elevation, one begins to find sub-alpine meadows. While the brightness of colour, the density of the herbaceous growth, and the deliciousness of the perfume of these meadows have become proverbial. I remember, with double freshness, one especially of the many I have traversed. This one was a meeting-place for the Indians as they traversed the Sierra from California to Carson Valley, in the State of Nevada. They call it "Sopago," deriving the name from the so-called Soaproot, Chlorogalum angustifolium. Here, surrounded by the high ridge of the mountain chain on which the emigrant-road runs, moist on account of its position on the north slope, stretches a wide vale under the shelter of giant Pines and Firs, which are safe from the murderous axe on account of their inaccessibility. Scattered settlers have set up homesteads here and there, and in the cleared areas, where their garden and grain plants ripen into rich crops in the deep, loose, blackish soil, was the largest field of Lilium pardalinum I ever beheld. What a stand of Lilies! They grew in thickets, stem by stem like grass in the meadow, 4 feet high, all with nodding heads of from four to seven flowers. Standing in the opening as they did, their colour was clearer (more orange), and the foliage shorter, and the stem more robust. Contrary to common belief, I was surprised to learn that the disturbance of the ploughshare rather favours than hinders the growth of the Lily, its corms dividing into fragments, each of which produces a new plant if but half covered by the rich warm soil under a sky the clearness and brightness of which render everything in its sphere grand and delightful.

Lilium Humboldti is another so-called Tiger Lily, of more sturdy growth and majestic character, the "Pardalinum of the hillsides." It occurs at about 2000 feet elevation, always selecting the open Pine-woods, never found near water, but always preferring slopes facing north. In this region, all the old timber growth has been cut off, and as we drive along the roads we may see the bright bunches, made up of five to twenty-five flowers on a stalk, shining brightly through the thin boughs of Pines. As the Hazel-nut is the steady companion of L. pardalinum, so the cream-coloured Iris Hartwegi is always to be found where Lilium Humboldti abounds. Two causes render this Lily more and more scarce: the stand of even the second growth of Pines is being cleared away and replaced by grain fields; in the second place, this species, wherever it occurs, is found in such thick growths as to invite the settler to supply his garden with Lilies from the fields. Lastly, it may be said that it requires fully three seasons for Lilium Humboldti to bloom again if it is once disturbed, and, unlike L. pardalinum, the ploughshare is its sure death.

Lilium parvum, Kellogg.—As its name indicates, the flowers are small; their colour is orange, with spots on the inside of the petals. It belongs to the alpine region, reaching as high as 8500 feet in the region I traversed, and does not occur below 4500 feet. Wherever I found this Lily, I noticed two forms, neither of which approached the other in any intermediate specimens. The smaller one reaches a height of 4 feet; its build is light, and upon the stem, set with scattered leaves of light green, stand loosely from two to six or seven flowers. The other kind is a giant in stature and make-up; the stems are woody and hard, set with whorls of rich deep green foliage, and carrying heads with from twenty to fifty flowers. I did not notice any difference in the flowers, and while it may be possible that this giant is nothing but a "Sequoia" amongst its kind, it is plain that the two varieties are widely different in appearance.

Lilium Washingtonianum, Kell.—High upon the ridges, exposed to storms from east and west, in soil of scantness, and dry almost as the granite from which it derives its existence, there grows the queen of the Lilies of the Sierras, L. Washingtonianum. Bands of sheep and cattle trot by on their way to the sweet meadows of the alpine region, and no herb, no limb of recent growth may be detected other than the bitter-barked Aspen or the prickly Snowbrush. I write of the ridge of the spurs bridging from the foot-hills to the snow-fields, as it appears in July. Under the shelter of the impenetrable Snowbrush, Ceanothus cordulatus, this Lily begins its growth at the time that the first bands of sheep start for the mountains. After the "hoofed locusts" have passed, and quietness again reigns on the ridge, interrupted only by the clatter of the horses' hoofs as the stockmen go back and forth to their ranges, then this Lily stretches its stately head from under the Thorns, and develops its fragrant flowers in the first week of August. They are white; and while I have been told about spotted ones—so spotted, in fact, as to be entirely set with rich maroon on the inside of their petals—I know them from the Sierra of Amador and alpine counties only with very tiny spots, and such tiny spots I have found on flowers only now and then. But the plants are grand in their stand, their tall stalks as high as 5 to 7 feet, and hanging out to the gentle breeze from two to twelve flowers. Emigrants passed along the ridge I mention for years and years, stockmen followed them, and bands of cattle made this region their home ever after; therefore, it is likely that this Lily may have been much more common in early days than now. Be that as it may, the plants I encountered are well protected from any attack by man or beast; and as we follow along the ridge, where the water must be packed for as many as twelve miles of travel, there holds guard this stately flower of our Sierras, delighting all as they pass either on their way to the valleys where the Lilium pardalinum is scattered about the winter homes of the settlers, or to where the ring of a hundred bells from the sleek necks of cattle add charm to the region where the tiny Lilium parvum grows along streams and precipices. *Geo. Hansen in "Erythea."*

SCOTLAND.

FORESTRY AS A PROFESSION FOR THE NATIVES OF INDIA, &c.

The Edinburgh University has recently been favoured by three lectures by Sir Dietrich Brandis, Ex-Inspector-General of the Forests of India, on the former subject, delivered in the Conveyancing Class-room of the University; these lectures were of the most instructive character as to the area, vital importance, and mode of managing our Indian forests.

The forestry estates cover some fifty million acres, while the duties of the Civil Service extend over 616 million acres, or 965,000 square miles. The Indian Empire, like others, is divided into provinces. Including the two Presidencies of Madras and Bombay, India is divided into eight large provinces and five smaller ones; in the whole there are 234 civil districts, each under a district officer, sometimes called a collector, at others a district commissioner. Besides these, there are a variety of other appointments—commissioners of divisions, settlement officers, and secretaries. These appointments in all numbering 824, are held by members of the Covenanted Indian Civil Service. Dr. Brandis spoke in the highest terms of the management of the forests, and the wisdom and prudence of the Government. Some of the fruits of the Civil Service Commission in 1886 were the raising of the age of candidates at the open examination held in London. During the five years from 1894 to 1898 inclusive, out of a total of 383 successful candidates, only thirty were natives of India.

The commission also advised the division of the Civil Service into three great branches—the judicial, the provincial, and the subordinate service. He pointed out that the officers in charge of such sub-divisions of districts as Myokir, Sahisdara, were unfortunately classed as subordinate officers. This was not the right position for an officer responsible for the government of 600 square miles, with a population of three and a half millions.

Contrasting the organisation of the public service in India with that of Germany, the lecturer made a strong appeal in favour of getting the highest classes of native Indians to take a more prominent part in the development and better management of the forests, concluding a series of stimulating and instructive lectures with the wise words of Lord Roberts in the House of Commons to the effect, "that the key to India is not to be sought for at Herat or Kandahar. It is to be found in the prosperity and contentment of the people. The blessings of progress which will become greater when the natives are more closely identified with the Government and forest management in India. Upon the wise solution of this question largely depends the maintenance of the British Empire in India." *D. T. F.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Cattleya Lawrenceana, now in bloom, is somewhat difficult of cultivation. Give water sparingly until root action is established. C. Lawrenceana being native to a low tropical region, the plants should be placed in the East Indian-house just before making their growths, and when this is completed they may be returned to the warm end of the Cattleya-house.

Dendrobium Falconeri—The cultural treatment frequently afforded this Dendrobium tends to encourage growth rather than a free-flowering habit. At the present season it is possible to obtain imported clumps, which should be immediately fixed in small pans or baskets, allowing the much-branched pseudo-bulbs to be pendent, and only using just sufficient peat and sphagnum-moss to cover the drainage. When this has been done, suspend the plants in a light and airy position in the Cattleya-house, and syringe them daily. After many roots have been made it is good practice to dip the plants bodily in the water-tank for a short time every morning until growth has ceased. Watering after this must be done more sparingly until in winter the plants will only need sufficient to maintain the pseudo-bulbs in a plump condition. D. × Venus, a hybrid from D. Falconeri, requires very similar treatment, but I would not dip this plant at any season of the year.

Cochlioda Roezliana may be grown in baskets or pans, with a rooting medium of peat and sphagnum-moss, the best position for them being above the Masdevallias, where they should be suspended. Any surfacing the plants may require should be done at once. They grow freely during the summer, and require at that season a goodly supply of water, which afterwards must be much decreased. C. rosea, C. vulcanica, and C. v. grandiflora are best grown in pots in company with Odontoglossum crispum.

Palumbina Candida.—This quaint-flowered plant now requires attention; it is best grown in pots or pans, and owing to the downward tendency of the rhizomes, the plants should be raised considerably above the rim of the receptacles. A moist, shady position at the warm end of the cool-house suits it best. Water sparingly, except during active growth.

Remarks on Temperatures, &c.—The following are suitable (shade) temperatures for the various structures. East Indian-house 75° by day, receding to 68° in the early morning. Cattleya-house 68° by day, falling to 63° by morning. The cool and intermediate-houses will now need very little fire-heat to maintain the requisite degree of warmth. Each house will need a thorough damping down every morning so soon as the temperatures have risen a few points, and in most cases again in the afternoon, but for some time yet this will depend on outside conditions. The warm-houses should become comparatively dry for a time about noon each day, but the cooler ones may be always given abundance of moisture, because the circulation of air in them is greater. The East Indian-house may be shut up early in the afternoon, but the others will require abundant ventilation during the day, and some also at night. The quantity afforded at any particular time must depend upon the conditions of the weather. Ventilation should be admitted from the sheltered side of a house during the prevalence of winds.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

The Early Peach-house.—Where the custom obtains of allowing Peaches to become perfectly ripe upon the trees, it will be necessary to employ fish-nets, or a good layer of clean straw spread over the floor, to prevent damage to any that may fall. The nets should be suspended from a convenient overhead position, and fastened to the trellises at the base of the trees. No such precautions are necessary, however, if the gardener makes a point of examining the ripening fruits regularly, and removing those sufficiently matured to the fruit-room. A gentle pressure by the forefinger applied to the fruit near the stem will determine the state of ripeness; and Peaches gathered before they are dead ripe, and stood in a cool room for a few days, are better in flavour and superior in every way to those that are permitted to remain upon the trees until they fall. But the greatest care is needful in the handling of Peaches, particularly if they have to be despatched a distance, as they are extremely liable to be blackened by bruises. Syringing of the trees must be discontinued when the fruits commence to soften, but the borders must still be daily damped down, and regularly afforded the necessary root-waterings. The ripening of the fruits will be hurried and premature if the roots be permitted to lack moisture. If the temperature of the house be slightly lower at the time of fruit-gathering, the trees will be benefited, and the altered condition will tend to increased quality in the fruits. A little ventilation may be afforded at night when the weather is mild.

In the Second Peach-house the fruits will be passing through the stoning period, a time when severe forcing is extremely hurtful. Weakly trees, whether from age or over-bearing, will need stimulating food, which may be furnished by a dredging of dry chemical manures, or natural liquid-manures obtained from the cow-yard or stable, diluted according to its strength. In all cases it must be carefully ascertained if the borders contain the degree of moisture necessary to the trees. Do not neglect to syringe the trees daily, for if red-spider get a foothold, it is not an easy matter to effectually dislodge them. Tie the new growths in position, and expose the fruits to all the sunshine possible. Do not permit the growths to become crowded. If there be not sufficient space for them, either pinch out their points, or remove them altogether. Very strong shoots may be pinched, afterwards tying-in the best-placed lateral growths that result from the stopping. In the case of well-furnished trees, the better plan is to remove these vigorous growths altogether. If green-fly be noticed, fumigate the trees, or syringe them with an insecticide.

Successional Houses.—The temperature and conditions necessary to trees in later houses will depend on circumstances, and the period when their fruits will be required. In gardens where a good supply can be obtained from out-of-door walls in August and September, the crops in the Peach-houses may be arranged to ripen at other times. Late varieties that may be expected to ripen in September and October should be kept as cool as circumstances permit, for the later that Peaches and Nectarines may be had in October the better. In the late house, thinning of the fruits should be done with considerable care. It is not advisable to reduce the crop to an average one until it can be seen with certainty which fruits are perfectly set. Thin out the shoots to the number required to furnish the trellis. Aphides, which in cool-houses are often troublesome at this stage, must be attacked before the leaves have become badly curled.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

The Disbudding of Fruit-trees should be continued at short intervals until all unnecessary growths have been removed. As Peaches and Nectarines are earliest among wall-fruits in starting into growth, most of the surplus shoots have probably been removed. Stop any extra strong-growing shoots, and retain one or more that will start from the base of such as are stopped.

Apricots.—When continuing to disbud these, take care to reserve any conveniently-placed growths on the front of the branches for the formation of spurs, as the Apricot fruits freely on spurs, as well as on wood of the previous year's growth. In addition to these, and besides the growths on the points of the shoots, one at the base of each should be allowed to remain. Take away a few of the others, at intervals of a few days, until the work is completed. Where any signs of loss of shoots are apparent from gumming or other causes, a sufficiency of young growths should be retained, to fill up eventually the space that will thus become vacant.

Sweet Cherries, Plums, and Pears, should be treated in a somewhat similar manner, removing the weakest and worst-placed growths, and retaining only sufficient to fill the spaces without overcrowding. The points of shoots that have already filled their allotted space should be stopped at the second or third leaf.

Out-of-door Vines.—Remove surplus growths, and leave one shoot only to each foot of rod.

Thinning Pear-blossom.—In the majority of gardens Pear-trees are blooming most profusely, and in such cases the blooms will need to be thinned. Weakly trusses may be removed altogether, and others thinned down to two or three fruits, retaining those that are the strongest and best placed.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Chrysanthemums.—The early-flowering varieties may now be planted out. They succeed best when planted on a south border, and if mixed with other plants, a sunny position will be necessary, as the stems require to become well matured to produce good flowers. Ordinary garden soil will be found rich enough for them. A distance of 3 feet should be allowed between each plant. Ryecroft Glory, Yellow Lady Selborne, Yellow L'ami Condorchet, Fiberta, Golden Madame Desgranges, Mrs. Hawkins, and Golden Drop, are the best of the yellows ; Mychett White, extra fine ; Madame Desgranges, La Neige, Sœur Melaine, St. Marie Vierge, excellent whites ; Captain Webb, Early Blush, St. Croutts, Trevenna, pinks ; Captain Nemo, Anastachio, Adrastes, Madame Picoul, Mons. Bredenner, purples ; Mons. Hoste, Mons. Wm. Holmes, Précocité (very fine), Souvenir de Madame Menier, Jules Lagravère, Mons. Henri Jacotot, Mons. Maxime de la Rocheterie, crimsons.

Roses.—If aphis has made an appearance on the young growths of the Roses, obtain some extract of Quassia, dilute it with water, and spray them, thoroughly wetting both sides of the leaves. This will destroy the flies, and leave afterwards a bitterness that is objectionable to them. Tobacco-powder is also an effective remedy. If any of the leaves be curled, they will probably be found to contain a maggot, which should be squeezed between the thumb and finger. Rose-trees that were not top-dressed in the autumn, and show signs of weakly growth, should be given about a quarter of a pound of dissolved bones to a square yard of soil; afterwards giving the roots a thorough watering.

Hollies.—May is the best time to transplant species of Hollies. First select a position, and make a hole large enough to take the ball ; then move the specimen, and lay out the roots in a natural position, adding to them as the work proceeds some fine leaf-mould or peat. When the work has been completed, afford a good watering to settle the soil among the roots, and finally mulch the surface with stable-manure. Seedlings from two to three years old that have been raised in beds in the nursery should be transplanted, 18 in. from plant to plant, and in rows 2 feet apart. It is always best to keep smaller plants of the varieties growing on, especially the golden and silver variegated kinds, as some years must pass before they become good specimens. The male and female (monœcious) flowering varieties are the most compact in habit ; the hermaphrodite flowering varieties, if not kept continually cut back, soon grow woody, and the branches near the stem become bare of foliage. All Hollies produce much better foliage, and become more dense, if pruned just before making new growth. Any bushes that have been neglected should be cut well back, as they will soon grow from the end of the cut, and invariably break further back in the stem.

Ivy growing against buildings or on walls should now be clipped back ; young leaves will soon grow, and if kept close in this manner, the Ivy will not be blown away from the wall by the wind, or weighed down in winter by snow.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Beet.—The main crop should now be sown, unless there be a doubt that the roots may grow larger than wished. If this be the case it will be better to sow one half now, and the remainder after a fortnight. Cheltenham Green-Top is a finely flavoured variety, and is less attacked by sparrows than the leaves of the darker coloured kinds. Varieties of Beet are very numerous, but Dell's Crimson, Pragnell's Exhibition, Cheltenham Green-Top, and Egyptian Turnip Rooted are still favourites. The ground for this crop should be deeply worked and brought into fine tilth. If it be too poor the roots will be ill-shaped and inferior in quality, but it should not be more than moderately rich. Sow the seeds thinly in drills 18 inches apart and 2 inches deep, and do not allow the young plants to grow too large before they are thinned out to 8 inches apart. Young plants of the Turnip Rooted variety just above the ground should be repeatedly dusted with soot and ashes to preserve them from sparrows and slugs. When living in Kent, I made use of the sweepings from the hop-kilns, and found it to answer first-rate for this purpose.

French Beans.—Sow a few rows upon a warm border, putting the seeds 8 inches distant one from the other, and the rows 14 inches asunder. Make the drills about 3 inches deep, and plant only the earlier varieties such as Ne Plus Ultra, and Pale Dun. This being a chance crop, another sowing should be made about the middle of the month, and they may be fit for use at the same time as those sown now. French Beans may also be sown in pots, and encouraged under glass. They can then be planted out at the foot of a south wall, or on a well-sheltered border, when the plants have become a foot in height. From such plants good gatherings of tender pods may be had several days in advance of those sown outside.

Scarlet Runner Beans.—The trenches should be prepared in readiness for sowing Runner Beans. Make the trenches similar to those intended for Celery, with the exception that more manure may be dug in. When digging out the trenches, replace the bottom soil with the top spit. For many years I have sown the first batch of Scarlet Runner Beans about May 14.

Early Brussels Sprouts.—Plants raised from seeds sown at the same time as Early Cauliflowers will now be large enough to be planted out in the open. Select a good piece of land, that has been either trenched or deeply dug ; draw the drills 4 inches deep and 3 feet apart from each other. The plants should be 2 feet asunder in the rows. Lift the plants with care, and do not expose them long to the air. If the ground be subject to grub, or the plants are likely to club, give a good dressing with soot, and when the plants have been put out, to settle the soil about the root, give a good soaking with soot-water. Repeat this at intervals. It is said that water containing a little dissolved salt is a good preventative, but this should be used with care.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Bougainvillea glabra should be repotted when the young shoots have become 2 or 3 inches in length. Let the pots be sufficiently large to admit of an inch of new soil being worked around the roots. The compost may consist of three parts loam, one part peat or leaf-soil, and plenty of coarse silver-sand. After potting, the plants should be placed in a brisk heat for a short time to encourage root action, after which they may be transferred to an intermediate-house or warm greenhouse. Except in the case of newly-potted plants, shading should not be given. In cases where the plants have made new growths very thickly, overcrowding should be prevented by the early removal of the weaker shoots.

Cytisus racemosa.—As these plants pass out of flower, cut them back and place them in a house having a warm, moist atmosphere ; and when they have started into new growth, repot them, using a compost of loam, a little leaf-soil or peat, and sand. As the growth progresses, the amount of air should be increased ; and upon the completion of the growth, the plants may be stood out of doors.

Reinwardtia (Linum) trigynum and R. tetragynum.—Cuttings of these very showy yellow winter-flowering plants may be inserted in pots filled with sandy soil, and plunged in a hot-bed or propagating-frame. When rooted, they should be potted-off into small pots, and grown on in an intermediate temperature until the summer, when they may be transferred to a cold pit or frame. The plants should be freely syringed, in order to keep down red-spider. Three parts fibrous loam with a little leaf-soil and some silver-sand is a suitable compost in which to grow Reinwardtias, and 5-inch or 6-inch pots are large enough to use for the final potting.

Miscellaneous.—Do not unduly hurry Lilium speciosum and L. auratum. Introduce bulbs into a cool house for a succession of flowers. Keep the plants free from green-fly by dipping them in an insecticide, or by fumigating them. Repot Justicias into larger pots sufficiently early to prevent them from flowering prematurely ; and pinch out the points of these plants, and of Ruellias, Impatiens, Bouvardias, Heliotropes, &c.

THE APIARY.

By Expert.

Artificial Pollen.—If the weather becomes warm, pollen should be freely gathered now, and failing a natural supply, Pea-flour may be given in its stead. For inducing bees to take Pea-flour nothing excels an old skep, from which the combs have been cut out. After being warmed at the fire, its odour will attract the bees to it very soon, and they will take the flour—scattered on shavings—at a great rate.

Weak Stocks.—The result of the first spring overhauling may reveal the fact that some stocks of bees known to be badly provided with food last back end will now be dead, or will have become so reduced in numbers as to be still broodless, with less than a pint of bees in the hive. It is useless tinkering with such stocks singly, they cannot be made strong in time to be of much use, and therefore, two or more of them must be united by the method usually adopted.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	May 9	Royal Horticultural Society of Ireland, Meeting.
FRIDAY,	May 12	—Royal Botanic Society, Lecture.
SATURDAY,	May 13	—Royal Botanic Society, Meeting.

SALES.

TUESDAY,	May 9	Important Sale of Established Orchids, at Millbank, Wilderspool, Warrington, by order of Mr. W. Bolton, by Protheroe & Morris (two days).
WEDNESDAY,	May 10	Japanese and English-grown Lilies, Gladioli, Greenhouse Palms, Begonias, &c., at Protheroe & Morris' Rooms.
FRIDAY,	May 12	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 23 to April 29, 1899. Height above sea-level 24 feet.

1899.	Direction of Wind.	Temperature of the Air.				Rainfall.	Temperature of the Soil at 9 A.M.			Lowest Temperature on Grass.
April 23 to April 29.		At 9 A.M.		Day.	Night.		At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.					
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 23	S.S.E.	50·2	43·8	52·4	40·6	0·02	46·9	47·9	47·2	34·2
Mon. 24	S.S.W.	51·8	47 0	52·8	44·1	0·29	48·5	47·9	47·2	41·0
Tues. 25	S.S.W.	51·9	50·9	55·6	46·2	0·14	49·1	48·1	47·5	45·2
Wed. 26	W.N.W.	50·9	46·5	54·6	43·4	...	49·4	48·5	47·5	37·6
Thu. 27	N.	53·0	48·5	59·9	39·9	0·08	49·5	48·7	47·8	31·1
Fri. 28	S.W.	54·8	53·2	60·5	46·9	...	51·8	49·1	47·8	41·5
Sat. 29	W.S.W.	55·2	51·5	59·9	50·6	0·11	52·2	49·6	47·9	44·8
Means...	...	52·5	48·8	56·5	44·5	Tot. 0·59	48·1	48·5	47·6	43·6

Remarks.—The weather for the past week has been remarkable for cold rains and winds, with bright sunshine at rare intervals.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—53·2°.

Actual Temperatures:—

London.—*May* 3 (12 P.M.): Max. 56°; Min. 54°.

Provinces.—*May* 3 (6 P.M.): Max. 58°; Min. 43°, Shetland.

Diseased Malmaison Carnations.

It is not a little remarkable that the two diseases which are so disastrous to Malmaison Carnations, and the cause of so great annoyance to growers, should vary so greatly in their effects on plants cultivated respectively in the south of England and in Scotland. In the latter country the fungoid growth called Helminthosporium echinulatum, which, vegetating inside the Carnation leaf, and bursting the epidermis, reveals itself in dark-brown powdery spots, and which is so destructive to plants in south Britain, is comparatively unknown. We believe it is a fact that few who cultivate Malmaisons in the north have ever had practical experience of this disease.

Equally remarkable are the effects resulting from the presence of the Carnation eel-worm, Tylenchus, while southron growers are able to make light of its presence in the north, its appearance is always dreaded, because at any moment it may assume a form so virulent as to lead to the destruction of whole stocks, and even healthy-looking layers may become incapable of producing roots. It is least destructive in its effects in the case of the pink variety, exerts an influence a little more baneful on the original blush; while its dealings with Lady Middleton, the striped form, is at once treacherous and fatal, inasmuch as plants in the flush of health during summer may long previous to winter be fit only for cremation. There are some who declare that no stock of Malmaisons, however healthy in appearance, is possessed of immunity from the attack of eel-worm. At the same time, it is just a little suspicious that plants bought and sold as free from disease can seldom, if ever, be depended upon to remain so for any length of time.

It will be gathered from the above remarks that Malmaison disease, as referred to in the southern parts of these islands, and also, we believe, in Ireland, is an organism different from that spoken of in the north. The former is in a degree amenable to such treatment as washing continually repeated, or to the application of fungicides. The latter, so far, has resisted successfully all attempts to destroy it unless its host is also sacrificed. The drastic measure of destroying infected stocks to be replaced subsequently by healthy plants, has often, indeed, been recommended, but it has certain drawbacks, not the least formidable of which is the undoubted uncertainty of being able to introduce disease-free plants in the room of those destroyed. So long, therefore, as it is possible to keep plants in a condition fairly healthy by means of annual renewal from layers, it would be unwise to go to extreme lengths.

Gardeners might take a hint from the market-growers who occasionally infuse new blood into their stock by purchasing from their neighbours; and also, say every second or third year, introduce a lesser or greater number of plants from a source reputedly healthy, and as far as possible propagate only from these. Bought-in Carnations, as a rule, do better for at least a couple of years than plants from home-layers. The condition of the layers, or rather the quality of the layers themselves, is a matter of no slight importance. One thing is quite clear, that badly-infected plants should not be propagated. As soon as these are bloomed-out it will always prove true wisdom to burn them. Very strong layers are, again, less to be depended on than those which, while healthy, are by no means so vigorous. And of these, short layers are better than long ones, for it is a curious habit of the eel-worm that it prefers old leaves to lodge in, and therefore even in the case of plants knowingly infected it is possible to secure, by taking short tips, fairly good layers. Early-layering is also a commendable practice, and one that is worth while to make an unvarying part of routine management

The treatment of the plants has an undoubted effect on the nematoid. Because, just as it seems to prefer a leaf that has been in existence for a prolonged period, so does it multiply most rapidly in plants that from any cause have experienced a check to growth. The check, for example, may arise from overwatering, or from a condition of an opposite nature during hot weather; from being too much shaded in winter or spring; or later, from being exposed to strong sunshine. It is also known to propagate rapidly subsequent to yearling plants being potted-on for blooming a second year. To escape this danger, growers have the plants repotted from 5 to 8-inch pots in spring, a practice that can be recommended only where the most careful watering is subsequently followed.

There is further the question of what material is best to use as a compost. It is well known that eel-worm finds a congenial home in Grasses, and in order to destroy the organism in turf, it is only prudent to bake it previous to mixing it in composts for Malmaisons. In any case, the turf ought to lie at least six months before using. The siftings from Orchid peat is a safe material to lighten loam, and these, with the addition of sand, to keep the compost open, is all that need be employed. Dung is unnecessary, and is better left out.

A simple unmanured compost like the above must, of course, be supplemented during the growth of the plants by an efficient fertilising agent. Manure-water, prepared from animal matter, should not be used; nor any fertiliser in a dry state, about which there is a suspicion that it may contain blood or other animal matter. Soot is valuable, though slow in action. But, on the whole, there is perhaps no better food than a mixture composed of dry superphosphate of lime three parts, and sulphate of ammonia one and a half to two parts; a little of this applied at weekly or fortnightly intervals to the surface of the soil is at once effective, and perfectly safe.

Owing, no doubt, to the wet, dull weather in the early part of winter, "spot" (Uredo dianthis) has been present on Malmaisons to an unusual extent this season in the north. This disease is easy of control if a dry, airy pit is at command, and infected leaves or even portions of leaves removed as the disease appears. By spring, collections ought to have been cleared of the pest. The past winter's experience points to the danger of keeping Malmaisons too long in frames; and perhaps, as a rule, they would always be better to be treated as greenhouse plants.

Linnean Society of London (April 20, 1899). Dr. A. Günther, F.R.S., President, in the chair.—Mr. J. B. Carruthers, F.L.S., communicated some observations on the localised nature of the parental characters in hybrid fruits of Theobroma Cacao, on which some criticism was offered by Rev. G. Henslow. Mr. H. H. W. Pearson, B.A., read a paper on the "Botany of the Ceylon 'Patanas,'" large savannahs in the forests at the same sub-tropical levels, and with the same climate, though not peculiar to Ceylon. These "patanas" appear to maintain their limits for long periods; but whether they thus exist on account of the burning of the grass in autumn, or by reason of some peculiarity in the climate, or exposure, is a question on which some difference of opinion has been expressed. The Rev. O. Pickard Cambridge, M.A., F.R.S., communicated a new list of British and Irish spiders. After reviewing the existing literature on the subject, and the materials which had come to hand since 1881 for a new and revised list of species, the author pointed out that the present paper was not intended merely for the use of authors or collectors interested in local faunas, but to give (with reference to primary authorities) the spiders at present known to belong to Great Britain and Ireland, leaving the question of their distribution, abundance, or scarcity, to be dealt with at some future time, when the present scanty number of spider-collectors might have increased. At present, large areas of varied natural characters, in some cases whole counties, and many maritime districts, were entirely unexplored, so far as the Arachnology is concerned.

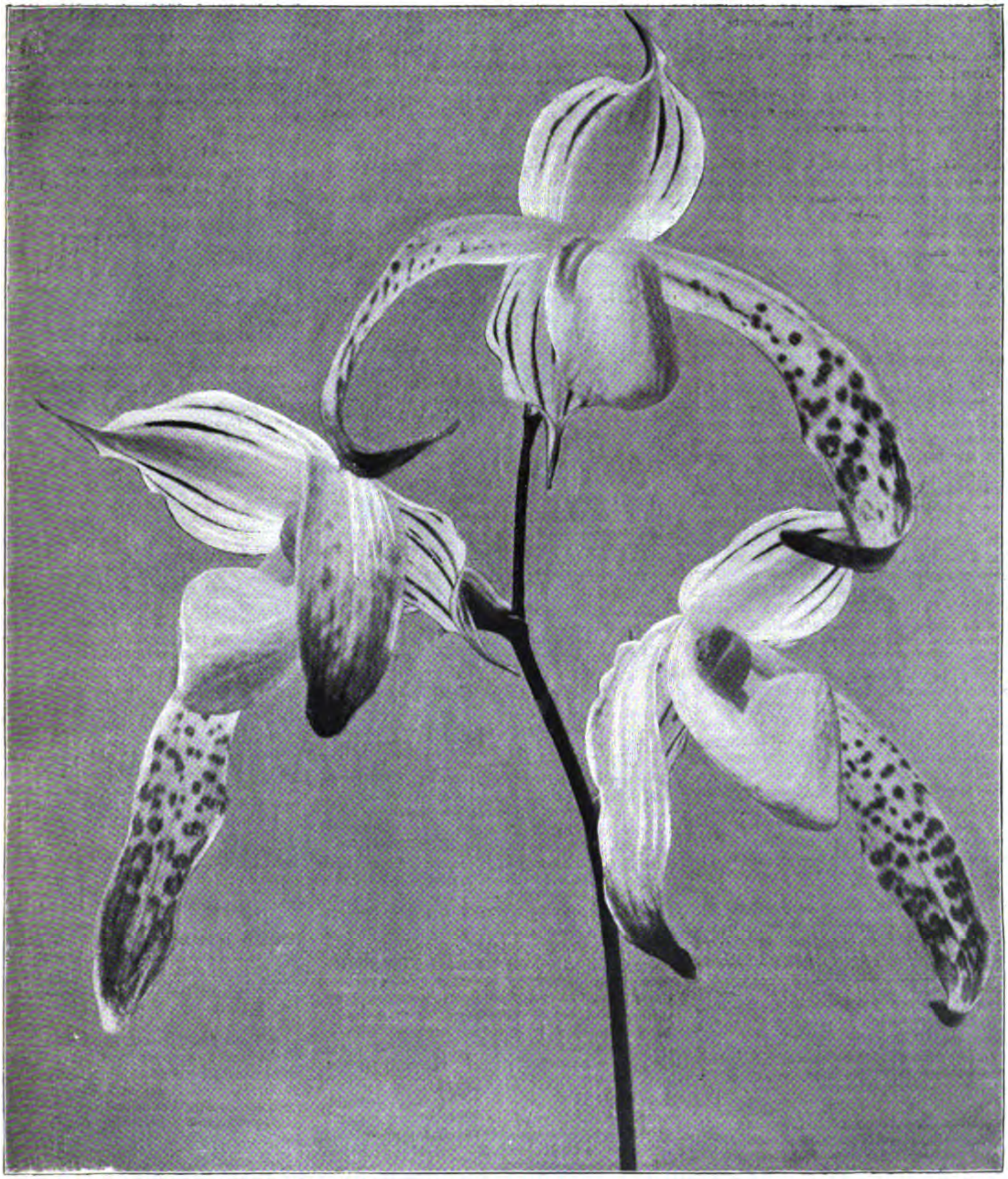


Fig. 104.—Cypripedium Stonei platytænium. (See p. 273.)

(From the Collection of Sir Trevor Lawrence, Bart.)

"Botanical Magazine."—The May number contains descriptions and coloured illustrations of the following :—

Nicotiana sylvestris, Spegaz.—A native of mountain valleys in the province of Salta, Argentina. It is a tall, coarse-looking, sticky, herbaceous plant, with the upper leaves sessile, pandurate, and with numerous tubular white flowers in dense terminal panicled cymes. Each flower is about 3 in. long. Kew ; t. 7652.

Cyrtanthus parviflorus, Baker, in *Gard. Chron.*, 1891, i., 104.—A small-flowered species with orange-scarlet flowers. It is a native of the Cape Colony ; t. 7653.

Alnus nitida, Endlicher.—A West Himalayan species with cordate ovate-lanceolate leaves, and long, drooping male catkins, bearing the flowers in rings, separated by interspaces ; female flowers in erect obtuse catkins. Kew ; t. 7654.

Dahlia Maximiliana, Hemsley, in *Gard. Chron.*, 1879, xii., 525.—A tall-growing species with mauve flowers, flowering after the Chrysanthemum, and therefore a valuable addition to winter-flowering conservatory plants ; t. 7655.

Veronica Dieffenbachi, Bentham, see *Gard. Chron.*, 1898, ii., p. 154, fig. 41 ; t. 7656.

The Chelsea Garden.—We are now enabled to give the names of the representatives of the various bodies who will form the Committee of Management. It would seem as if the committee were greatly too cumbrous to manage so small a garden, with so limited a revenue. It contains, moreover, many who are not gardeners or botanists. The provision for instruction in systematic botany—one of the greatest wants of the time—does not seem adequate. The representatives appointed by the trustees of the London Parochial Charities are the Hon. Mrs. Evelyn Cecil, the Right Hon. Sir M. E. Grant Duff, Mr. W. Hayes Fisher, M.P., Mr. R. B. Litchfield, Mr. L. B. Sebastian, Sir Owen Roberts, Mr. Sidney Webb, the Rev, R. H. Hadden, and Mr. Evan Spicer. The Treasury has appointed Mr. A. B. Freeman-Mitford, C.B. ; and the Lord President of the Council has appointed the Right Hon. Sir Herbert Maxwell, M.P. Dr. D. H. Scott, F.R.S., of Kew Gardens, is the representative of the Royal Society ; and Professor S. H. Vines, F.R.S., of Oxford Botanic Gardens, of the Senate of London University. Mr. J. R. Upton has been appointed by the Society of Apothecaries ; and Mr. Michael Carteighe by the Pharmaceutical Society. The appointment by the Technical Education Board of the London County Council has not yet been completed, but it is understood that a committee have recommended the appointment of the chairman of the board, Mr. T. A. Organ. Earl Cadogon, or any person to be delegated by him, is an *ex officio* member of the committee. Mr. H. Howard Batten is acting as hon. secretary to the garden, and any communications on the subject may for the present be addressed to him, at 3, Temple Gardens, Temple, E.C.

Pæony Disease.—Dr. Ritzema Bos mentions a fungus, Botrytis pæoniæ, as the cause of disease in the Pæony. All affected leaves should be burnt. As the fungus spawn is internal, external applications are of comparatively little use, unless as preventatives.

Belgian Colonial Horticulture. — A society has been formed in Belgium under the name of l'Horticole Coloniale. Ltd., to develop the colonial resources of Belgium. The capital is 2,400,000 francs (£96,000). The society is to absorb the "Horticulture Internationale" of Brussels, as well as the establishment of M. Lucien Linden at Moortebeeke. A vast colonial establishment is to be founded at Linthout, for raising economic plants in large quantities. The new society will be managed by M. Lucien Linden. Among the shareholders, we observe the names of Madame Linden, M. A. Madoux, the Bleichroder Bank at Berlin, M. Van Lansberge, formerly Governor-General of the Netherlands Indies ; Count Adrien d'Oultremont, and others.

The History of the Laurel-Cherry.—M. E. Roze contributes to the March issue of the *Journal de la Société Nationale d'Horticulture de France* some notes on the history of the Laurel-Cherry, commonly, but erroneously called Cherry-Laurel, or Prunus Lauro-cerasus. He remarks that, according to Charles de l'Escluse, the plant was to be found towards the end of the sixteenth century not only in Vienna but also at Nuremburg, in the garden of Joachim Camerarius, to whom he had sent it, but that this shrub has been previously planted in the garden of Prince Doria, at Genoa. It was cultivated in Switzerland from the beginning of the seventeenth century, as Jean Bauhin, who died in 1616, informs us that the Laurel-Cherry had fruited at Lucerne, and that he had himself sown some of the seed at Montbeliard, but without success. However the introduction of this ornamental shrub into France may have been effected, the Laurel-Cherry was found, in 1636, in the Jardin Royale des Plantes Médicinales, Paris (now the Museum of Natural History), as it is mentioned in the catalogue of the garden published that same year by Guy de la Brosse. It is met with again in 1689, according to the catalogue of the same garden, attributed to Sherard. And it is evident that it had time to become distributed over France during the whole of the seventeenth century. Then, Duhamel du Monceau, in his *Traité des Arbres et Arbustes qui se cultivent en France en Pleine Terre* (1755), does not fail to speak of the Laurel-Cherry. He tells us that there existed at that time, in addition to the primitive type with green leaves, sorts with foliage variegated with yellow and with green.

The Fertilisation of Plants. – M. Guignard presented to the Academy of Science on April 4, a paper on "The Processes of Fertilisation as observed in Lilium Martagon." The paper is very technical, and can only be followed in its entirety by specialists. In the pollen-tube, as is now well known, are formed two cells, one vegetative, one reproductive. In the embryo-sac also are various nuclei, one of which is called the polar nucleus, as well as groups of cells at either end. As soon as the pollen-tube penetrates the embryo-sac, one of the two male nuclei unites with the polar nucleus, the other with the oosphere or egg-cell. The male nuclei elongate into the form of a hook or crescent, ultimately becoming spirally twisted. Although no cilia are visible, M. Guignard does not hesitate to call this an "antherozoid" from the close analogy there is between this and the male reproductive bodies of the higher cryptogamous plants and of some gymnosperms (Ginkgo, Cycas). In summing up, M. Guignard says that the essential phenomenon observed, by M. Nawaschin and himself, consists in a two-fold sexual union in the embryo sac, the one resulting in the formation of the embryo, the other developing into the albumen or perisperm in which is stored up the food required by the embryo. If these results be confirmed, the gap between the vascular cryptogams and the flowering plants is again bridged over. The albumen, as well as the embryo, thus seems to be the result of a sexual process, which is quite a novel idea. The variations in the number of the chromosomes, suggests to us a possible explanation of the phenomena of "sporting" and of variation generally. It seems that the life-history of the flowering plants and all that it implies, must be studied in the development of the embryo-sac and its contents. These researches must therefore be made by the few, for not many can be endowed with the necessary skill or material requirements.

Large Trees at Pitfirrane, Fife.—The lands of Pitfirrane, in the west of the "kingdom" of Fife, have been held by the family of Halkett for the past 500 years. This may to some extent account for the number of fine old trees which adorn the spacious park around their ancestral home. The present owner, Sir Arthur, takes a lively interest in arboriculture, and is justly proud of the sylvan features of his park. Tall and handsome examples of broad-leaved trees are admirably grouped ; and the well-balanced, umbrageous heads of many single specimens in the open park are a striking feature in a beautiful landscape. The girth measurements of some of the finest stems of the trees have just been taken by Sir Arthur, from which we learn that of ten Oaks with grand boles, the largest girths 14 feet 6 ins., and the average girth is 14 feet. Of ten Beeches, the largest is 17 feet, and the average 15 feet 4 ins. ; of ten Scots Elms, the largest is 20 feet 7 ins., and the average 15 feet 4 ins. ; of ten Planes (Sycamores), the largest is 17 feet 6 ins., and the average 13 feet 6 ins. ; of seven Ashes, the largest is 15 feet 5 ins., and the average is 14 ft. A Lime girths 15 feet, and an enormous Willow as much as 19 feet. All the measurements were taken at 3 feet from the ground. The record is a good one, and probably among the best that can be found in the county of Fife, which is noted for its ancient family mansions and richly-wooded parks.

Destruction of Charlock. — Under the auspices of the Essex County Council, experiments are being conducted on the destruction of charlock in field crops by sulphate of copper. The following directions for spraying are given : Dissolve 5 lb. of ground sulphate of copper (blue stone or blue vitriol) in 25 gallons of water. By means of a spraying-machine, distribute this solution in the form of a fine spray over the crop. If applied while the charlock is still young, on a still day, and in fine weather, this quantity should be sufficient for 1 acre.

The Royal Gardeners' Orphan Fund.—At a meeting of the committee, held on the 29th ult., the sum of £32 2s., inclusive of two annual subscriptions for one guinea each, was received from the Gardeners' Charity Guild, per Mr. G. Dean, as the result of the smoking-concert held at the Cannon Street Hotel on March 15 ; and six members of the committee of the Guild were placed on the list of life-voters.

Rose Show Fixtures in 1899.—The following dates of Rose shows are in addition to those notified on p. 202, April 1. Mr. Edward Mawley, of Rosebank, Berkhamsted, Herts, who has kindly supplied us with these particulars, will be glad to receive notification of any Rose shows not included in either list, or of any horticultural exhibitions where Roses are made a leading feature. June 13 (Tuesday), Cambridge ; June 21 (Wednesday), Isle of Wight (Shanklin) ; June 28 (Wednesday), Maidstone, Reading, Richmond, and Ryde ; June 29 (Thursday), Sutton ; July 5 (Wednesday), Brockham and Tunbridge Wells ; July 6 (Thursday), Farningham ; July 7 (Friday), Hereford ; July 13 (Thursday), Bedale ; July 20 (Thursday), Sidcup ; July 22 (Saturday), Newton Mearns.

Apples from the Antipodes.—The officials of the Orient Company have received information stating that the *Austral* is on her way with some 23,000 cases of fruit, and the *Australia* with 8800 more—a total of 31,800 cases.

—— A curious discovery has been made at Chesham, Bucks, by Mr. Joseph Hearn. While unpacking a box of Tasmanian Apples he found one wrapped in paper, on which was written : "This Apple was packed by Miss Kate Piety, granddaughter of late Thomas Piety, of Kent, England. If any of you know their address, please send it to me at Derwent House Falls, New Tasmania. I am very dark and good-looking, and would be pleased to see any of you who come my way." Some one in Maidstone having heard the above story, and hearing that a niece of Mr. Thomas Piety was still living in Maidstone, sought her out.

This proved to be a Mrs. SARAH ANN BRISSENDEN, *née* SARAH ANN WRIGHT, of the Rose and Crown, Maidstone.

IS ELEVATION NECESSARY IN THE FORMATION OF ROCKERIES?—In the Botanic Gardens at Cambridge, Mr. LYNCH has placed pieces of stone upon the ground level, and between them are planted rock or alpine plants. Numerous species have been used in this novel method, and the result has led Mr. LYNCH to the conclusion that the slight elevation obtained in most rockeries is not of value in the cultivation of alpine plants, but it increases very considerably the difficulties in affording the necessary water to the plants during dry weather. But, of course, situations differ widely from each other, and in every garden the conditions of soil, &c., are not so dry as at Cambridge. It would seem that in low and damp situations, the elevation even afforded by an average rockery would help to ameliorate the unsuitableness of local conditions. Apart from the question of necessity there remains also that of effect, and a raised rockery, providing the structure is placed together with taste, and an appreciation for what is natural and congruous, is no doubt a more striking feature in a garden than the plants would furnish when placed upon the ground level. In a few cases also, the rockery is of equal interest with the plants, that of Sir CHAS. ISHAM'S, for instance, at Lamport Hall, figured in these pages on September 25, 1897. But Mr. LYNCH does not advise the sacrifice of elevation in all rockeries, and states merely that he is satisfied the slight degree thus obtained is of no practical value to the plants. It is a matter that many of our readers may try under their own circumstances.

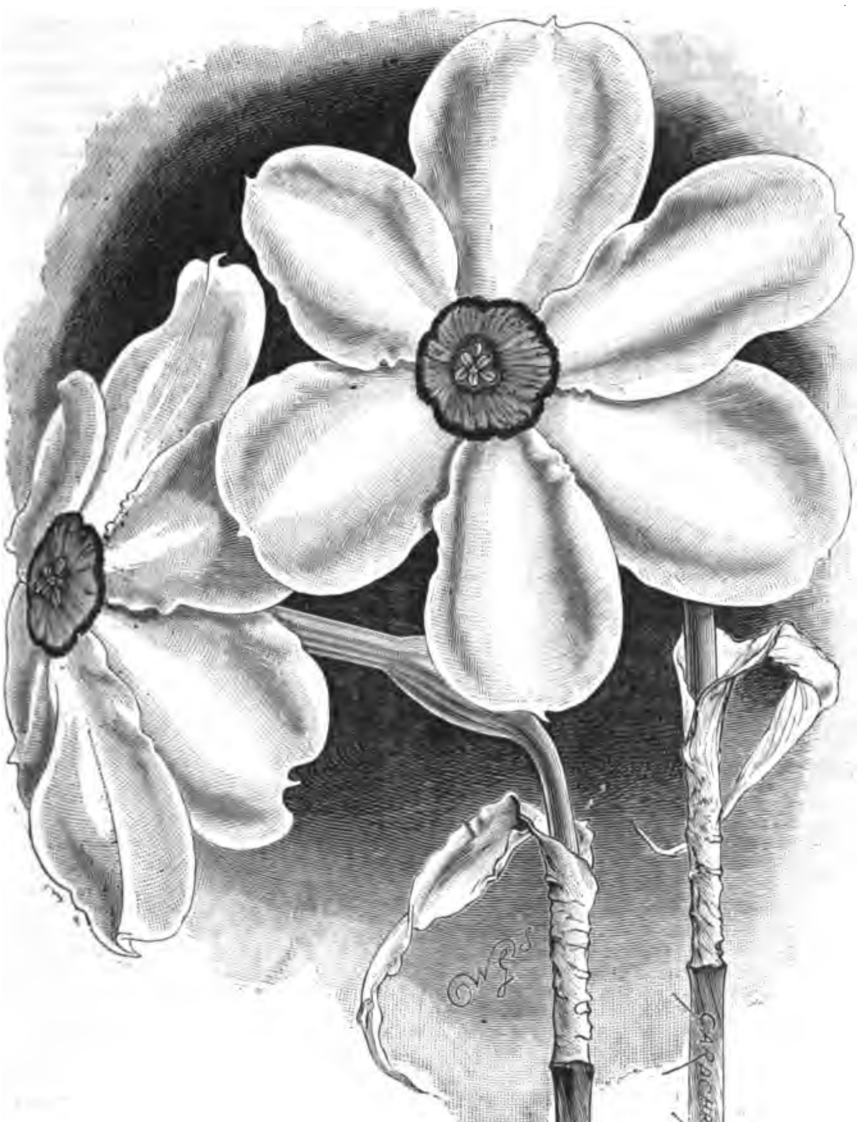


FIG. 105.—MR. HARTLAND'S NEW NARCISSUS. (SEE P. 284.)

"FLORA OF KENT."—The above work, comprising an account of the flowering plants, Ferns, &c., growing spontaneously in Kent, with notes on the topography, geology, and meteorology, and a history of the botanical investigation of the county, with two maps, by FREDERICK JANSON HANBURY, F.L.S., author of *An Illustrated Monograph of the British Hieracia*, and editor of *The London Catalogue of British Plants*, &c., and EDWARD SHEARBURN MARSHALL, M.A., F.L.S., Vicar of Milford, Surrey, is to be published almost immediately. It will be an octavo volume of between 500 and 600 pages. It was commenced over twenty years ago, when, for purposes of the *Flora*, the county was divided into ten districts. Each of these districts has been explored botanically, both by the authors and by the many friends and contributors who have helped to bring this work to its present standard of completeness. In addition to these more recent observations, it will include all that have been previously published, and copious records from the public and other herbaria which have been consulted. There are two maps. The larger, reduced from the ordnance survey, shows the divisions of the several botanical districts; the smaller is coloured geologically. In the introduction the topography of the county is described, separate sections being devoted to its botany, geology, and meteorology. The history of botanical investigation in the county is traced from the sixteenth century onwards. A table, showing the distribution of each plant as regards its occurrence in Essex, Middlesex, Surrey, and Sussex, with complete lists of contributors and of the books and herbaria quoted, are also given. The work will be issued to subscribers. Orders may be sent to FREDERICK J. HANBURY, Plough Court, Lombard Street, London, E.C.

INTERESTING TO "PAST" AND PROSPECTIVE KEWITES.—During the present month a regulation will come into effect obliging all young gardeners employed in the Royal Gardens, Kew, to be dressed in suits of blue serge. Previously, the only rule affecting dress has applied to visitors to the gardens, who for years have been forbidden entrance to the establishment unless "decently" clad. The gardener has worn fustian, broadcloth, or cord, as his tastes have guided him.

FERN HYBRIDS.—Mr. CHAS. T. DRUERY, 11, Shaa Road, Acton, is preparing a paper on "Hybrids and Crosses of British Ferns, and their Varieties," for the forthcoming Conference at the Royal Horticultural Society, and would be glad to receive fronds and evidence of crossed or hybridised Ferns, for use in connection therewith.

THE THIRTY THOUSAND DOLLAR CARNATION is now in England, in the extensive collection at Dover House, Roehampton. Mr. PIERPONT MORGAN, who has recently arrived in this country from the States, and whose admiration for all sections of the Carnation, but particularly that of the Souvenir de la Malmaison type, is well known, brought with him a quantity of blooms and a number of cuttings of this variety, which, it will be remembered, is known as Mrs. Thomas W. Lawson. The cuttings, after travelling so many miles, are not over promising, and Mr. McLEOD is not without doubt as to whether he will be successful in rooting them, but he may be trusted to establish them if it be possible. In such an event, it will not be very long before English-grown plants in flower of this much-talked-of Carnation may be anticipated at the Drill Hall. These cuttings, we believe, have been selling at £10 and £12 apiece.

IVY-STEALING IN THE EXETER DISTRICT.—In our last issue we published details concerning a conviction at The Castle of Exeter Court for Fern-stealing. From particulars kindly furnished by Mr. A. HOPE, it seems that at the Exeter Sessions Court, on May 29, a similar case was conducted. The prisoners in this instance, however, had torn down growing Ivy from trees on the estate of the Hon. MARK ROLLE, and had tied it in bundles for sale in the town. Both prisoners were sentenced to fourteen days' imprisonment with hard labour.

GARDEN PRODUCE BY RAIL.—A departure by the united South-Eastern and Chatham & Dover Railways, which will be much appreciated by town dwellers and farmers, is just being instituted in regard to the conveyance of farm produce direct from the producer to the consumer. Following the example set in this direction by the Great Eastern Railway—a development which has proved a success—the South-Eastern and Chatham Companies announce that henceforward farm and market-garden produce will be conveyed to consumers by passenger train from all stations to London, and from all stations (except those within twenty miles of Charing Cross) to the principal towns on the two systems at a reduced charge of 4*d*. for 20 lb., and 1*d*. additional per additional 5 lb. up to 60 lb., including delivery within the usual limits. In connection with this new service light and inexpensive boxes are on sale at all the Companies' stations.

FLORAL DECORATIONS AT CHESTER.—On the occasion of the visit of H.R.H. the Prince of WALES to Chester Races on May 2, the enclosed paddocks near the Grand Stand were finely decorated by Messrs. DICKSON, Ltd. The plants were effectively grouped in the centre and around the sides of the enclosed ground, and formed a very attractive feature in the paddocks. The pale golden Cupressus macrocarpa lutea, which originated in the Chester Nurseries, was used to good effect with the fine specimen Palms, Bays, Euonymus, Japanese Maples, Rhododendrons, Azaleas, and many other species of decorative-plants.

NEW NARCISSUS.

MR. HARTLAND of Cork sends us blooms of a cross-bred Narcissus of great beauty. It is a cross from N. poeticus var. ornatus and another, and is remarkable for its large size, the reflected condition of the white perianth segments, which are bent back nearly as in N. cyclamineus, much more so than is represented in the illustration (fig. 105, p. 283). The segments also overlap one another in a curious fashion; but whether this was peculiar to the specimen we saw, or is general, we do not know. We hope Mr. Hartland will not give it a Latin name.

TREES AND SHRUBS.

FORSYTHIAS.

THERE are few species of spring-flowering shrubs that deserve greater attention than the Forsythias. I have recently noticed in this neighbourhood some magnificent specimens of F. suspensa, the charming blossoms of which are so profuse as to almost hide from view the stems and branches. One wonders that such a lovely-flowering shrub is so seldom seen, for it is a quick grower, and thoroughly hardy. The blossoms also are seldom injured by frost. As a climbing plant against a wall, or a specimen tree in the border, it is very effective, and the plant may be forced in much the same way as an Azalea or Rhododendron. The deep-yellow flowers are borne on slender pendulous branches. The trifoliolate, deep-green leaves are deciduous, and the new ones appear after the tree has flowered. F. suspensa succeeds in any good garden soil, but preferably a soil containing much sandy loam should be chosen. Propagation may be effected by means of layers in summer, cuttings of ripened growths in autumn, or by grafting on stocks of the common Privet.

F. Fortunei is regarded by some authorities as a distinct species, but for garden purposes, it and F. suspensa may be classed as synonymous. In F. intermedia we have an interesting hybrid between F. suspensa and F. viridissima. From small plants I have seen, it would appear that the flowers resemble in shape and colour those of F. suspensa, but in growth it is so rapid as to be similar to that of F. viridissima. It is well worth planting. A description of this plant may be found in *Garten Flora*, 1891, p. 82.

F. viridissima is a species that differs from all others in being a much more rapid grower, and forms a small bush 10 or 12 feet in height. Its flowers are smaller in size, but are produced in even greater profusion. They are deep yellow in colour, tubular in shape, and generally appear during March or April. The leaves are deep green, linear lanceolate, simple and entire. It is an admirable plant as a climber against a wall, and it is equally useful in the shrubbery border. Introduced from northern China in 1845; it was described in the *Botanical Magazine*, p. 4587. *E. S., Woking.*

HOME CORRESPONDENCE.

TO FORCE CLEMATIS MONTANA.—Upon a recent visit to the nursery of Mr. H. Henkel, at Darmstadt, Germany, I saw many plants of the above species in flower. It is a very valuable plant for forcing. With respect to the treatment, there is, said Mr. Henkel, no difficulty, but it is very necessary to select good established plants. The plants then in flower had been cultivated in pots for two years. Beyond this, C. montana may be treated very similar to Prunus, Deutzia, &c. Mr. Henkel's plants are about 1 to 1·5 metres high, quite covered with the umbels of their white, slightly-scented flowers; the climbing branches are tied up to stakes, forming elegant pyramids. *C. K. S.*

SKIN IRRITATION FROM COLEUS LEAVES.—Two instances have come under my observation where persons from handling these plants have become affected by a skin rash and swollen eyelashes. Primula obconica has no effect whatever upon myself, while the Coleus produces intense inflammation. The milk-like sap of the Fig on some people's skin will produce large blisters and intense irritation, the effect of which is felt for weeks afterwards; but others are proof against either the Fig, Primula, or Coleus. *Harry W. Whiting, Stoughton Grange Gardens, Leicester.*

CAMELLIAS.—Having once had charge of 4000 Camellia plants in 200 varieties, my opportunities of learning the peculiarities of varieties and the usual methods of culture were of no common kind. It is a fact that the Camellia is not nearly so popular a plant as was once the case; and as your correspondent, "E. H. S.," remarks, the Chrysanthemum has done much to supplant them, and rightly, as I think, when we consider the amount of house-room required to have a good display of both. Then, again, the flowers of the Camellia are ill adapted to travel, the petals bruising so easily [if badly packed. ED.]. The blossoms are, moreover, less well adapted for arranging in vases in a cut state. Then, again, when the plants are small, flowers with long stalks cannot be cut with impunity. I am well aware that a Camellia bloom is usually taken without any part of the shoot on which it grew, and is then "wired," and thus used for many purposes, but can this be said to be the best way of showing the Camellia? The blooms themselves, owing to their regular and stiff outline, are nowadays voted too prim. However, it is not for the purpose of decrying the Camellia that I pen this note, but purely to point out some drawbacks attending the use of the flowers when cut from a plant. The finest specimens are obtained by planting in a cold greenhouse or conservatory, in a compost consisting of fibry sandy-loam and peat, two parts of the former to one of the latter, and affording the borders good drainage, for the Camellia requires much moisture at the roots when making new growth, and again when swelling their buds, but it dislikes stagnant moisture. Camellias may be planted against the back walls of lean-to Peach-houses and vineries, succeeding in early forced houses where the whole of the roof-glass is covered with the trees. In such a position the Camellia luxuriates, the moisture required for the Peaches in February, March, and April, just suiting its requirements at that season; and again, when the fruit is ripening and the trees are resting, the prevailing conditions of a forcing-house are suitable. Late vineries and peacheries are not so well adapted for the plants, the amount of direct sunlight browning the leaves before they can obtain shade from the Vines and Peaches. True, shading can be afforded the trees, but this gives trouble. Species and varieties of Camellia which make long shoots may here be utilised, as such shoots are readily tied to the wires upon the wall, and the blossoms are better adapted for decoration when cut with a good length of shoot, such are C. Mathotiana, C. m. alba, C. Donckelaari, C. Chandleri elegans, C. Marchioness of Exeter, and C. Prince des Fleurs. Potting is best performed directly the plants have finished flowering, except perhaps those that have been severely pruned. This, as a rule, is seldom necessary, as, with due care, the cutting of the blooms is sufficient pruning. Extra large pots for small plants are not necessary nor desirable; and the soil recommended for a border is quite suitable, with the addition of some silver-sand. [The Camellia being in its native home an inhabitant of forests, growing in deep shade, has requirements that are well met by mixing with the loam one-sixth to a quarter of decayed wood-soil, that is, faggot-wood or the like, which has laid in a heap in a moist shady place till decayed, the decayed portions being sifted out of it yearly, and laid on one side for use till all be decayed. This is precisely the sort of plant-food it obtains in a state of nature, and may take the place of peat or of leaf-soil in Camellia compost. ED.] Pruning should be done where required just previous to new growth being made. In the case of small or half specimen plants, pruning only should not be depended upon to obtain the necessary shape; by bending the shoots downwards, additional growths are forced from the nodes below. When the plants are making their growth, they should be syringed twice daily, to encourage growth, and wash off the black aphis. Top-dressing with loam and dried cow-dung is best done previously to new growth being made. *E. Molyneux.*

—— Mr. Chapman's excellent reply to "B. C.'s" enquiry at p. 262 of your last issue, reminded me of some failures that have followed the use of such a compost as Mr. Chapman recommends. Your correspondent grows these plants exceedingly well, but there is a vast difference in loams, both in their chemical and mechanical compositions. Some calcareous loams ought never to be mixed with peat-earths for hard-wooded plants, particularly for such as are not repotted frequently. The best soil for Camellias is one taken from pasture-lands resting on the red sandstone, or from granite formation, and is neither light nor heavy in texture. If the pasturage is of fine quality, skim it off about 1½ inch in thickness, break it up small, or according to the size of the plants to be potted, and add nothing whatever to this, but repot firmly. With careful after-treatment, it is astonishing how quickly Camellias will thrive in this. If the herbage is of a coarse nature, it would be advisable to char the grass over a wood-fire before using. I could explain how I brought an extensive collection of large and small plants from a dying condition into robust health and vigour; but perhaps as Camellias are neglected in the immediate present, the time is not yet opportune. *J. Easter, Nostell Priory Gardens.*

WINTER SALADS.—I entirely agree with your correspondent on p. 270. We have for years grown here, in north-west Yorks, the large form of Corn Salad, "*Mâche a grandes feuilles*," as the French catalogues call it, and have been able to cut from it in the severe winters of the past—and, indeed, salad from under the snow when Lettuces were gone. If plunged at once in cold water (not taken to a hot kitchen to thaw), it makes, with the addition of a few seedling Onions, a salad (in mid-winter) which no epicure would despise. You see I am a lover of what one of your correspondents calls, rather contemptuously, "green-meat." I am far from being a vegetarian, but I cannot help thinking that, if more "green-meat" and less "red-meat" were used in England, our health might be better. *R. Milne-Redhead, Clitheroe.*

—— I am sending two Lettuces of Stanstead Park (Cabbage). I have been cutting such Lettuces ever since the first week in March, and have not been without plenty during the whole winter. A batch of All-the-Year-Round gave me a fine supply up to the end of January. The seed was sown in August, 1898; and that of Stanstead Park in the first week in September, 1898. All-the-Year-Round affords good winter supplies, but is not so good as Stanstead Park in early spring. *W. J. Rus[illegible], jun., Woodlane Nurseries, Falmouth.* [Very good specimens, weighing about ¾ lb. when partially trimmed. ED.]

HEPATICA ANGULOSA VARIETIES.—Mr. Lorenzen, Copenhagen, Denmark, has written to me regarding my remarks upon the varieties of H. angulosa in the *Gardeners' Chronicle* of April 15. Mr. Lorenzen informs me that he has a fine light rose-coloured variety of H. angulosa, which he got from a German nursery three years ago, and a fine white-flowered variety obtained from Holland in the autumn of 1897. A flower of the latter, nearly over when pulled, was enclosed for inspection, the other being out of bloom. I feel greatly obliged to Mr. Lorenzen for his most interesting letter. It is prized as a fresh proof of the international good feeling so prevalent among those of kindred tastes in flowers and plants. *S. Arnott.*

EUCHARIS × STEVENSII.—This garden hybrid, between E. candida and E. Sanderi, is one of the most free-flowering of Eucharis. Given a moderate stock of plants, so that fresh batches can be periodically brought forward into a little extra heat, one need seldom be without their flowers. The lasting qualities of the flowers, either in a cut state or upon the plants, are unusually good. *P. Bott, Wentworth Gardens.*

BIRDS AND FRUIT-TREES.—The latter part of my communication in last week's issue is a little misleading. In the spring of the year insects are very plentiful, with the swelling and opening of vegetative buds, and insect-eating birds find plenty of food. It is in a dry autumn, when insect-life is comparatively dormant, having commenced the hybernating stage, that such food is scarce, and Peas and Pears suffer by tom-tits in consequence. It is then that a few pounds of suet as an artificial food does good service. *R. M., Newbury.*

MAY-DAY, 1899, NORTH O' TWEED.—Even so far north as Edinburgh, May-day occasionally gives us a foretaste of summer. But this year on May-day the east wind swept over sea and land with relentless hardness, carrying sleet and snow, or rain colder than either in all directions. Fortunately, the season is a fortnight or three weeks behind time, and with the exception of a few Peaches and Apricots, and precocious Pears on walls, the fruit-buds are still, in the main, safe. The last day of April gave little warning as to the close proximity and recurrence of wintry weather. That May-day was foggy and wet in Edinburgh almost goes without saying. In Glasgow the sunshine on Sunday was succeeded by a downpour of cold rain that lasted late in the afternoon. Galashiels had a heavy fall of snow, which lasted for several hours, and which needed the heavy rain of all the rest of the day to clear it away. At Greenlaw snow fell from early morning till late in the afternoon. At Dumbarton a heavy fall of snow fell in the morning, followed by a wet day. Hawick also had 4° of frost, a snow-storm, and a thunder-storm later on. Langholm had thunder, and a heavy down-pour of rain. Moffat a slight fall of snow, thunder and rain. The Blairgowrie folk, in whom the writer is specially interested, having lectured there on fruit-culture last year, instead of finding their well-cropped fruit and other gardens sparkling with May dew, found them covered with snow. It snowed with little or no intermission from 5 A.M. till 11 A.M., at times falling very heavily, and reached a depth of from 3 to 4 inches in parts of the surrounding country. Still more wintry reports reach us from central Perthshire, where the abnormally backward spring of 1899 seems to have culminated in their winter on the morning of May-day. The snow began to fall thickly and fast about four in the morning, and continued till noon, converting the upland roads and paths into masses of snow and slush several inches deep. The extremes of symptoms, as well of seasons, however, seems to meet a good deal further south at Melrose, where the notes of the cuckoo were said to be distinctly heard in the Calker's Glen on the Abbotsford Estate, while the whole surface was covered with snow. *D. T. Fish.*

SOCIETIES.

ROYAL HORTICULTURAL.

May 2.—The usual fortnightly meeting of the Committees of this Society was held on Tuesday last in the Drill Hall, James Street, Westminster. The exhibits were considerably less crowded than on the last occasion, but there was a good display nevertheless, and from the unusual quantity of Narcissi shown, including some very beautiful novelties, there was a degree of brightness that is seldom surpassed. In addition to the large trade exhibits, which were really representative collections of the choicest varieties of Narcissi, the Committee who adjudged this section of the Show recommended three Awards to novelties that are described below.

The exhibits with which the Floral Committee were chiefly concerned, included a splendid display of Irish-grown Tulips from Messrs. Hogg & Robertson, Dublin, who may be congratulated on their appearance in the Drill Hall; Tulips also from Messrs. Barr & Sons, &c. Roses from Messrs. Paul & Son, Cheshunt, and Mr. Mount; groups of Ferns from Mr. H. B. May, and Messrs. J. Hill & Sons, Edmonton, and several exhibits of hardy flowering plants. This Committee recommended Awards of Merit only in two instances to Richardia Pentlandi, Tring Park var., and R. suffusa, both being shown from the gardens of Lord Rothschild.

There was a nice display of Orchids, and the Orchid Committee recommended Awards of Merit in seven instances, or an equal number to the whole of the other committees combined.

The Fruit Committee made no award to any novelty, and the chief exhibit before this body was a comprehensive collection of vegetables and salads from the Duke of Northumberland's garden at Syon House.

In the afternoon a paper, entitled "The British and Swiss Alpine Floras," was read by Mr. E. A. N. Arber, B.A., an "old" student at Chiswick.

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. John Fraser, Owen Thomas, Chas. T. Druery, H. B. May, R. Dean, W. Howe, J. Jennings, J. F. McLeod, R. B. Lowe, C. J. Salter, Chas. E. Shea, H. S. Leonard, J. W. Barr, Chas. Jeffries, Geo. Gordon, J. D. Pawle, E. H. Jenkins, Herbert J. Cutbush, E. Beckett, E. T. Cook, H. J. Jones, Geo. Paul, and Ed. Mawley.

Heliotrope Madame Fillay, shown by Mr. J. Hudson, gr. to Leopold de Rothschild, Esq., Gunnersbury House, Acton, is a new Continental-raised variety, with dwarf, compact habit; it produces large trusses of pale-coloured flowers immediately above the foliage.

Mr. Geo. Mount of Canterbury again staged beautiful Roses, there being twelve dozen blooms, in addition to a number cut as long sprays with foliage. Caroline Testout, Ulrich Brunner, Captain Hayward, were shown in quantity, but numerous other varieties were represented by glorious blooms, though fewer in number (Silver Banksian Medal).

Messrs. Paul & Son, Cheshunt, made a very gay exhibit of Roses in pots, almost every plant being crowded with a fine show of flowers. Some of the more prominent varieties were Etoile de Lyon, Caroline Testout, Viscountess Folkestone, Marquise Litta, and a fine new white H. T., named Victoria Melita. The Dawson Rose, a single-flowered variety, is a charming plant for the wilderness garden (Silver-gilt Banksian Medal).

Mr. G. W. Piper, Uckfield, Sussex, again exhibited a number of blooms of the pretty and peculiarly-tinted Tea Rose, called Sunrise.

The exhibit of Ferns from Mr. H. B. May, Dyson's Road Nurseries, Upper Edmonton, was composed on this occasion of species and varieties of Gleichenia, there being thirteen forms shown of this very beautiful genus. We noticed G. longipinnata, G. dichotoma, the well-known G. speluncæ, one of the very best; G. Mendeli, a useful Fern for forming specimens; a strong-growing form of G. rupestris, known as gigantea; and G. Backhouseiana, a comparative novelty, of dwarf habit and neat appearance (Silver-gilt Banksian Medal).

Messrs. J. Hill & Son, Lower Edmonton, made an interesting exhibit of Ferns, for the greater part consisting of varieties of Asplenium, and including such diverse forms as A. Nidus, A. caudatum, of Nephrolepis-like growth; and A. viviparum, a very finely-cut variety (Bronze Banksian Medal).

Richardia Pentlandi was shown by Mr. E. Hill, gr. to Lord Rothschild, Tring Park, Tring. He had six very strongly-flowered plants.

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea, exhibited plants of a new variety of Codiæum named Mrs. Iceton. The variety has moderately broad leaves, coloured variously with red, yellow, and green. Messrs. Veitch also showed varieties of Rhododendron balsaminæflora, double flowered, in yellow, white, rose-coloured, &c. All of these different coloured double-flowered varieties were produced by seeds from one capsule, which resulted from a flower that had a petaloid stamen, fertilised with pollen from the perfect stamens. The flowers are very attractive, and the plants grow vigorously in a warm greenhouse.

Messrs. W. Cutbush & Son, Highgate Nurseries, London, N., staged a group of miscellaneous plants of a decorative character, including some of the more popular Ericas, new varieties of Azalea indica, Boronias, &c.

Auriculas, that at the last meeting were not more than average in quality, were represented by a moderate-sized group of beautiful varieties and novelties from Mr. Jas. Douglas, Edenside Nurseries, Great Bookham. But no award was made to any of these, nor to others shown by Messrs. Thos. Ware, Ltd., Hale Farm Nurseries, Tottenham. From these Tottenham Nurseries came also a few Tulips and other hardy flowers.

Messrs. Barr & Sons, King Street, Covent Garden, London, in addition to an extensive exhibit of Narcissi, showed a very nice collection of varieties of florists' Tulips, and an interesting little group of alpine plants in flower. Amongst some Erythroniums from Messrs. Barr, was a highly decorative variety called Pink Beauty.

The lovely yellow-flowered Fritillaria imperialis was exhibited by J. T. Gilbert Dyke, Esq., Bourne, Lincolnshire, who contributed a grand bunch of them.

Messrs. Wallace & Co., Kilnfield Gardens, Colchester, showed in company with other plants, a greenish-flowered Fritillary (F. Elwesii), Muscaria conicum, and the gay coloured Tulipa Greigi.

Seedling Primroses and Polyanthuses were staged by several exhibitors, including some from F. W. Campion, Esq., Colley Manor, Reigate (gr., Mr. J. Fitt), and Messrs. H. Cannell & Sons, Swanley. Messrs. Cannell's crimson-flowered Primrose, Miss Massey, was a very fine one.

Tulips were exhibited largely and grandly by Messrs. Hogg & Robertson, Mary Street, Dublin. There were about 150 huge bunches of these Irish-grown Tulips, and they were remarkable for excellent colour and good substance and size. The species of Tulipa were capitally represented, and attracted some interest. We noticed among these such as T. primulinum, the dainty little T. Clusiana, the spreading T. cornuta chinensis; the brightly coloured T. Kolpakowskiana, T. viridiflora, T. elegans, all well known, but representative of interesting types. The florists' Tulips were also present in large numbers, and a small but fine collection of Darwin Tulips completed this welcome exhibit from the Emerald Isle (Silver-gilt Flora Medal).

Messrs. G. Jackman & Son, Woking, exhibited a group of hardy and alpine plants, in which Gentiana acaulis and varieties of Primula Sieboldi were noticeable. They contributed also a fine lot of bloom of Magnolia conspicua, and M. alba grandiflora (Silver Banksian Medal).

AWARDS.

Richardia Pentlandi Tring Park variety.—A very large spathed variety as shown, and more rich in colour than this yellow Calla has been previously seen (Award of Merit).

Richardia suffusa.—A pale primrose-spathed Calla was shown under this name, reminding one of that known as R. aurita, but paler even than this one. The spathes are moderate in size, and at the interior base is a large purple stain. (Award of Merit).

Both of the above varieties were shown by Mr. E. Hill, gr. to Lord Rothschild, Tring Park.

Narcissus Committee.

Present: Messrs. J. T. Bennett-Poë (in the chair), C. R. Scrase-Dickins (Hon. Secretary), P. R. Barr, A. Kingsmill, J. Pope, R. Sydenham, W. Goldring, G. Titheradge, J. Walker, Revs. G. H. Engleheart and E. Bourne.

Narcissi, though not in their zenith as on April 18, were strongly represented in the hall, especially by the east-coast growers. The large bank of flowers in great variety staged by Messrs. Bath, of Wisbech, was an exceptionally fine exhibit, the blooms large, fresh, and well finished; Weardale Perfection was particularly striking (Silver-gilt Flora Medal).

A Silver Flora Medal was awarded to Messrs. Barr's large and comprehensive collection; and a Silver Banksian Medal to Messrs. T. S. Ware's exhibit.

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea, had also a collection of Narcissi in variety.

A stand of new hybrid seedlings from the Rev. G. H. Engleheart seemed a centre of attraction. This was smaller than that of April 18, but every flower was well in advance of the varieties in cultivation, especially in refinement and distinction of form, and rich or delicate colouring. A few blooms of the splendid Will Scarlett, though staged as old flowers, still retained the wonderfully deep and glowing orange-scarlet in their large cups. Two beautiful flowers obtained Awards of Merit. There were also several large bunches of fine crimson-eyed Poeticus seedlings in this exhibit, and many other notable flowers.

Mr. R. O. Backhouse, Sutton Court, Hereford, was thanked for an interesting exhibit of seedlings; and Mr. J. Walker, Thame, submitted two flowers of a remarkably fine double yellow Incomparabilis.

AWARDS.

Narcissus × Marina, having a pale creamy perianth of perfect, rounded form, and large open saucer-like crown of softest lemon. From Rev. G. Engleheart (Award of Merit).

N. × Hesperus.—A variety with spreading segments of pale creamy-buff, the eye rich apricot-orange. From Rev. G. Engleheart (Award of Merit).

N. × Dorothy Kingsmill, from Andrew Kingsmill, Esq., Harrow Weald. This flower, raised by Rev. G. H. Engleheart, is a hybrid of extraordinary size, from a cross between Ajax grandis and triandrus. The flower is as large as that of grandis, is creamy-white, with something of the drooping character of triandrus (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshay, J. Gurney Fowler, Sydney Courtauld, H. J. Chapman, J. Gabriel, W. H. Young, W. H. White, W. H. Protheroe, A. Outram, T. Statter, H. T. Pitt, E. Hill, J. Jaques, W. Thompson, T. W. Bond, Walter Cobb, F. Mason, A. H. Smee, H. Little, J. Colman, and H. Ballantine.

Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), staged a group of interesting Orchids, specially remarkable in which were a fine specimen of the rare Cirrhopetalum Cumingi, with twenty-nine of its fan-like heads of bright rose-purple flower; a very fine example of Cirrhopetalum Colletti, with fine flower-spikes; Dendrobium crepidatum maximum, with which was shown the ordinary form much smaller in size and less bright in colour; D. × Nestor (Parishi × anosmum); D. × micans giganteum, one of the most beautiful of hybrids; D. × Stratius (Linawianum × Dalhouseianum), with singularly-formed pink flowers; the pretty little Masdevallia O'Brieniana, and a fine specimen of Pleurothallis ornata (Silver Banksian Medal).

W. Thompson, Esq., Walton Grange, Stone, Staffordshire (gr., Mr. W. Stevens), showed a group of excellent Odontoglossums cultivated and flowered in his usual superb manner. Among them were Odontoglossum × Ruckerianum ocellatum, a fine form with light rose-coloured flowers handsomely spotted with red-brown; O. luteo-purpureum, Thompson's variety, a very large flower, having all but the yellow tips of the sepals of a rich brown colour, the petals cream-white blotched with brown, and a handsomely-marked white labellum (Cultural Commendation); the fine O. l.-p. sceptrum Stevensii, a grand O. polyxanthum, with two flower-spikes (Cultural Commendation); a pretty light-coloured O. × excellens, with a fine-branched inflorescence; two superb forms of O. crispum, and the handsome Lælio-Cattleya × Hippolyta aurantiaca, with wholly orange-coloured flowers (Silver Flora Medal).

De B. Crawshay, Esq., Rosefield, Sevenoaks, showed a very remarkable group of Odontoglossums, in which were eleven distinct forms of O. × Andersonianum, ranging from the large nearly unspotted forms, to others densely spotted with various tints of brown (see list of Awards); the fine O. × Ruckerianum, Rosefield variety; O. triumphans "Rosefield Emperor," a grand form, near to O. t. Lionel Crawshay; the rare O. Nevadense, and a pretty blush-white Cattleya Mendeli (Silver Flora Medal).

Messrs. Jas. Veitch & Son, Royal Exotic Nursery, King's Road, Chelsea, showed Dendrobium × crepidato-nobile, a pretty and interesting cross between D. crepidatum and D. nobile, the white flowers tipped with rose, and bearing on the lip a singular claret-coloured marking, more nearly approaching in form to D. crepidatum, but the flowers were larger.

Messrs. Hugh Low & Co. were awarded a Silver Banksian Medal for a group of Cattleya Mendeli, one of the most distinct being C. M. Princess, blush-white, with purple marbling in front of the yellow-tinted tube. With them were good examples of Miltonia Roezli alba, Phalænopsis Sanderiana, Lælio-Cattleya × Latona, &c.

W. A. Gillett, Esq., Fairoak Lodge, Bishopstoke, sent cut spikes of a number of fine varieties of Odontoglossums, Cattleyas, and Dendrobiums, all excellently grown. Among them were fine forms of Odontoglossum crispum, one purple-tinted form scarcely expanded being especially good; excellent O. Pescatorei, O. × Coradinei, O. luteo-purpureum, O. Haynaldianum, a noble Cypripedium Rothschildianum, and some very large flowered Dendrobium nobile.

R. G. Fletcher, Esq., Withdean, Brighton, sent Selenipedium caudatum, and its pouchless variety Lindeni.

R. I. Measures, Esq., Camberwell (gr., Mr. H. J. Chapman), showed Cypripedium × Thyades (superbiens × Chamberlainianum), a curious cross, having the upper sepal pale-green with thin purple lines; the extended petals greenish white with numerous dark-purple spots, and crimped ciliate margin: the lip reddish-rose.

F. A. Rehder, Esq., The Avenue, Gipsy Hill, sent Cypripedium × Mrs. Rehder (Argus × Rothschildianum), a flower of fine substance of a reddish-yellow ground colour, the petals bearing many dark chocolate spots, the upper sepal tinged with green, and bearing a few dark lines. Also Miltonia flavescens.

C. L. N. Ingram, Esq., Godalming (gr., Mr. T. W. Bond), showed Lælio-Cattleya × Sir Wm. Ingram, a richly coloured hybrid between Lælia purpurata and Cattleya aurea.

F. M. Burton, Esq., Highfield, Gainsborough, showed a very fine Odontoglossum polyanthum and Cypripedium × porphyrites, probably a C. concolor cross, the greater part of the flower's surface being bright crimson-purple, with a few blackish spots on the petals.

AWARDS.

Epidendrum × elegantulum luteum (Wallisii ♀, Endresio Wallisii).—A fine colour variation; flowers borne in racemes of four or five on the upper part of the growths. Sepals and petals bright yellow; lip white, with slight rose shade in the centre. From Messrs. Jas. Veitch & Sons (Award of Merit).

Odontoglossum triumphans, Dulcote Variety.—Flowers large, each segment broad, and well proportioned; the light yellowish ground colour bearing large chestnut-brown blotches covering the greater part of their surface. From Walter Cobb, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes) (Award of Merit).

Odontoglossum × excellens McBeanianum.—A grand variety with very large flowers. Sepals broad, lemon-yellow with three large transverse red-brown blotches; petals white at the base, the outer half pale yellow, bearing one or two large brown blotches and some smaller. Lip oval, crimped, pale primrose-yellow with darker yellow crest, and three reddish blotches in the middle. One of the finest which has yet appeared. From Messrs. Jas. McBean & Sons, Cooksbridge (Award of Merit).

Odontoglossum × Ruckerianum Rosefieldiense.—Flowers large and well formed, purplish-rose with showy red-brown markings. From De B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke) (Award of Merit).

Odontoglossum × Andersonianum Mrs. De B. Crawshay.—Flower nearly as large as in some forms of O. crispum, creamy-white with a very few reddish spots, and yellow callus on the lip. From De B. Crawshay, Esq. (Award of Merit).

Odontoglossum × Andersonianum "Raymond Crawshay."—A showy variety with large cream-coloured flower, the Indian red closely-placed markings being confined to the middle of the segments, leaving a broad unspotted margin. From De B. Crawshay, Esq. (Award of Merit).

Fruit Committee.

Present: Philip Crowley, Esq., in the Chair; and Messrs. Geo. Bunyard, E. Shaw Blaker, W. Poupart, A. F. Barron, T. J. Saltmarsh, A. H. Pearson, J. Wright, Alex. Dean, S. Mortimer, W. Bates, P. C. M. Veitch, G. T. Miles, Geo. Wythes, H. Balderson, F. Q. Lane, Jas. Smith, and M. G. Gleeson.

A box of excellent fruits of the Strawberry Royal Sovereign, from T. W. Campion, Esq., Colley Manor, Reigate, won from the committee a Cultural Commendation; and a like acknowledgment was made in the case of two dozen first-class fruits of Alexandra Peaches, shown by Mr. J. Ryder, gr. to the Countess of Limerick, Hawkeswick, St. Albans.

Mr. J. Mortimer, Rowledge Nursery, Farnham, again showed fruits of the Tomato Winter Beauty; and Mr. Owen Thomas, gr. to Her Majesty The Queen, Royal Gardens, Windsor, exhibited fruits and bine with fruits of Tomato Epicure. This is an exceedingly small-fruited variety, and the fruits are almost round, of good flavour, and exceedingly free; but they are scarcely so fleshy as they might be, and the skin is rather thick. Mr. Thomas also showed a number of pots of Peas, the variety being Harbinger, freely podded, and ready for the table.

A collection of vegetables and salads, from Mr. Geo. Wythes, gr. to the Duke of Northumberland, Syon House, Brentford, illustrated what is possible in the way of variety in vegetables in the early spring season. There were forty varieties of vegetables, and twenty of salads. A Silver-gilt Knightian Medal was awarded the exhibit. The Potatos shown included Sharpe's Victor, Veitch's Ashleaf, and a nice looking variety named Syon Early Perfection, obtained from a cross between Myatt's Ashleaf and Sharpe's Victor. Of Broccolis we noticed Veitch's Model, Late Queen, and Sutton's Continuity, all of them being capital sorts for home consumption. There were young roots of white and purple Milan Turnips, also Sutton's Forcing, sown only ten weeks since; White Spanish Onions, Early Nantes Carrots, Lettuce Hammersmith Hardy Green; Mushrooms, Prickly Spinach, Batavian Endive, French Beans Early Favourite and Syon House; Borecole; Sprouting Broccoli; excellent Asparagus from protected beds; Seakale; Cucumbers Improved Telegraph and Veitch's Perfection; Chives, Radishes, &c. A curious feature of the exhibit was a number of pots of Spinach—not a common method of forcing this vegetable. Mr. Wythes also showed excellent Rhubarb, from seed sown in April, 1897.

THE GREAT HORTICULTURAL EXHIBITION AT GHENT.

April 30 to May 9.—The important horticultural exhibition instituted by the Ligue Horticole "l'Union" for the province of East Flanders, and standing under the patronage of H.R.H. Prince Albert of Belgium, the Minister of Agriculture and Public Works, and the Governor of the Province, was opened to the public on Sunday, April 30, by H.R.H. Prince Albert. The opening was attended with but little ceremony.

The horticultural exhibits of kinds likely to be injured were mostly brought together under a canvas roof, covering an area of 60,000 square feet; Orchids, Anthuriums, Vriesias, Cacti, &c. and a few of the more valuable exhibits, in glass-houses existing in the garden; hardy trees of all kinds, and garden appliances out-of-doors. The site of the show, a garden attached to a dwelling about to be converted into a nunnery, occupies an area of 9 acres, so that plenty of space for the purposes of an exhibition of this kind was available; moreover, the garden being pretty well furnished with walks, fruit-trees, and ornamental trees and shrubs, and several glasshouses, gave advantages not to be ignored in such enterprises as this one. The general impressions on a first view were, that it was strong in Palms of moderate size, but weak in those usually seen at Ghent, which come from the gardens of amateurs, as might be supposed at a first show got together by the nurserymen of the town of Ghent and the province. Groups of Azalea indica, none of them consisting of large plants, gave colour, as did lesser groups of Clivias, Cytisus, Acacias, Azalea mollis, Choisya ternata, some Hippeastrums from Mr. Ker, Aigburth, and Callistemons.

On entering the show area by the only available door, the eye was taken by a stretch of turf flanked at the sides with Azaleas, but free of everything in the middle, ending in a mass of rockwork representing a wall of rock pierced by a low browed arch or opening, through which was observed a sunlit opening in a tropical landscape appropriately planted. The effect of the whole from the entrance-door, was exceedingly good. The walk skirting the sides of the building was carried over the aforesaid arch, affording the beholder a view the entire area from the height of about 10 feet from the floor. Of striking objects may be mentioned, Dracæna Goldieana, Acalypha Sanderi, many lots of Cocos Weddelliana, fine Boronias in groups and single plants, and Citrus sinensis, loaded with fruit.

ORCHIDS.

Taking Orchids first, we find Mr. Chas. Vuylsteke, of Loochristy, exhibiting a very fine lot of Odontoglossum crispum raised in Europe by artificial fertilisation. All were striking, but a brief description of each must suffice. Odontoglossum Magnificent, flowering for the first time, possesses a white lip, as do most of them, betokening their crispum origin on one side, the ground colour of the sepals and petals yellow, densely spotted with brown on the upper half, and with purple at the base; O. grandiceps is of stellate form, with broad petals and sepals tipped with a pale yellow tint and blotched with brown for two-thirds of their length, base of lip a purple tint; O. præstans, rather similar to the last, but with more numerous brown patches on the petals and sepals, the flower above middle size; O. salmoneum, creamy-white ground freely marked with brown spots, and spotting at the base of the lip; O. eximium, a flower with a bright yellow ground, and a half-circle of a brown tint containing an oblong brown patch in the middle, this is one of the best of the lot; O. Loochristiense has a yellow ground colour, with large patches of brown on all the segments excepting the lip; O. bellatulum, nearly wholly of a rich brown tint with bars of yellow, the lip purplish-brown at the base. O. corallinum, a flower of middle size, with short, broad segments of a creamy-white ground, dotted over distinctly with brown, and the lip is furnished with purple spots. O. hirsutum is of great size, boldly marked with brown on the wide and long petals and sepals; the lip long, and ending in a point, with purple and brown spots on the basal half. Another form of O. Loochristiense, differing from the other in having more white at the base of all the segments; it is comparatively a large flower. O. gratiosum is a flower with a yellow ground-tint, blotched brown, and small purple spots on the lip. The alleged parents of these fine varieties are crispum, triumphans, Pescatorei, and, perhaps, Halli. The 1st prize of 500 francs was awarded, together with a work of art, *à l'unanimité*.

M. C. Vuylsteke exhibited a group of seventy-five Orchids, receiving the 1st Prize, and a table service for twenty-four persons. We noted several fine Odontoglossums, including ioptocon, a dark purple; a nice bit of Cypripedium caudatum, Masdevallias in some variety, including Veitchi grandiflorum, Houtteana, and Lindeni; a fine plant of Cymbidium Lowianum, Miltonia Bleueana, white flower; and M. Empress Augusta, of a bright rosy purple; M. vexillaria virginalis, a very superior white and rose-tinted flower, &c. A nice collection of small-sized and good things.

M. C. Vuylsteke was awarded 1st prize and a Gold Medal for a collection of thirty Odontoglossums, including cuspidatum xanthoglossum, gloriosum crispum guttatum, excellens triumphans, a very fine form; t. maximum, histrix equally so. All small, of trade size. The same exhibitor was awarded 1st prize for a collection of ten Masdevallias, including ignea aurea, ignea majestica, Veitchiana grandiflora, and Harryana splendens.

The finest Cypripedium was Flamingo, shown by M. Hye Leysen. It is a flower generally of a greenish-yellow tint, with purple marking, the dorsal sepal purplish, with a white margin (1st prize and a Silver Medal).

The most beautiful Lælio-Cattleya was shown by M. Hye Leysen. It is a hybrid from L. purpurata and C. Lawrenceana, and in shape and colour it may be said to be fairly intermediate between these species (1st prize and Silver Medal of 1st class).

The best fifty Orchids were those of an exhibitor whose name we could not ascertain, who obtained 1st prize and a work of art. We noted Cattleya Warneri, C. Mendeli in its finest form, C. × Parthenia gratissima, C. Schiellmanniana, various Miltonias, Odontoglossum crispum guttatum violaceum, a handsome form, having a rosy ground-tint; O. Halli leucoglossum, O. Ruckerianum, O. R. superbiens, Mesospinidium vulcanicum grandiflorum, &c.

Messrs. E. Praet & Co., Mont St. Amand, in a collection of twenty-five, showed a Vanda tricolor, a Miltonia or two Cattleya Schroderi, Cypripedium villosum, C. Dauthieri, Odontoglossum Ruckerianum, Cœlogyne cristata, &c., ordinary trade plants (1st prize, together with a work of art).

M. E. Praet & Co., St. Amand, had several small exhibits, usually taking 1st prizes. He had, for example, the best Epidendrum, and in another class the finest Cymbidium Lowianum, and Oncidium sarcodes. The finest Cattleya Mossiæ was that shown by him.

Mr. Van Beerleere, Mont St. Amand, showed groups of thirty and of fifteen Cypripediums. Cool Orchids in quantity were not shown, and numerous classes were not represented.

M. Van Beerleere had the best dozen of one species fit for using in apartments, showing Odontoglossums.

Dendrobiums and Cœlogynes were scarcely represented, and the prizes went to not very fine specimens.

M. Hye-Leysen had 1st Prize for Dendrobium Ballianum, a charming white-flowered species, with the habit and form of flower of D. nobile. The same exhibitor took the 1st award for a large plant of Cypripedium Boxalli furnished with a dozen blooms. He was likewise 1st with an Odontoglossum triumphans, and with an Angræcum sesquipedale with ten blooms—a remarkable number for so small a plant; and also with Cattleya Lawrenceana var. Hyeana, a flower with a deep purple lip. The best Masdevallia, viz., Pourbaixi, an orange-red flower, came from him.

Messrs. F. Sander & Co. showed a natural hybrid Odontoglossum Prince Albert, absolutely new, and flowering for the first time under cultivation. The flower is of the most admired form, with a wide, channeled, and fringed lip, which is white at the apex, and brown at the base; crest fringed and white, and a prominent feature; sepals of a yellow ground tint, with broad brown blotches, the petals showing more of the yellow, and less of the brown colour. The flower is as if varnished.

With the exception of the class for seventy-five Orchids, for which only foreigners could compete, the competitions were open, and good cultivation and fine flowering were the points of chief consideration.

NEW PLANTS.

For a collection of twelve Palms new to commerce, Messrs. F. Sander & Co. were easily 1st, and remarked were small specimens of Kentia Kirsteniana, leaves of a dark-green tint, and obtusely wedge-shaped leaflets; K. Warletiana, with leaflets few and distant; Ptycoraphis singaporensis, a graceful species, with many narrow leaflets on each leaf-stalk, the latter semi-pendent; Linospadix Petrickiana, in general aspect bearing a resemblance to the last-mentioned plant, but the leaflets are broader, and the closed central leaf is bronzy-green; K. Sanderiana, a graceful species, of seemingly rapid growth; Areca Ilsemanni, an erect-growing plant, whose central leaves are coppery-hued, and the leaflets half-an-inch in width, and set 1 inch apart; Rhopaloblaste hexandra, a particularly ornamental Javan species; Linospadix Micholitzii, a broad-leaved species from New Guinea, each leaf divided at the apex; Ptychoraphis Augusta, Licuala Jeanenceyi, and lastly, Calamus Alberti, good Palms, of fine characteristics. In this class a 1st prize fell to Mr. Arthur de Smet of Ledeberg, near Ghent, for a species named Didymospermum porphyrocarpum, of bold habit, and robust build.

The best new Pandanus was shown by Messrs. F. Sander & Co., namely Sanderi, a species of apparently robust habit, leaves of great length, serrated at the edges, and broadly striped with white on green.

The best Juniper of recent introduction was J. Sanderi, a Japanese species introduced about 1896 by Messrs. F. Sander & Co. As seen, it is extremely bushy, but probably when not cut up for propagation, it will assume a rather less dense, and a pyramidal mode of growth. It is believed to be a useful plant for furnishing window boxes, beds in the open, and for pot culture. The habit of the plant bespeaks its thorough hardiness. The colour of the needles is blue-green. The plant was likewise shown by the exhibitors in another section of new plants along with Tsuga canadensis Sargenti pendula, and Pinus Thunbergi variegata. The first-named has the diffuse habit of the type, and the usual inclination of the stem from the perpedicular. It has short dark coloured needles set in a triple row. Other characteristics were not noticeable owing to the small age of the plant. The second plant has branchlets densely clothed with needles, two in a sheath, which change to white when aged. The firm was awarded a 2nd prize and Silver Medal of Class II. for this exhibit of Conifers.

The best new Crotons (Codiæums) distinct, were shown by M. Le Draps-Dom, of Laeken, Brussels, viz, M. Draps-Dom, B. Comte, and Alphonse de Rothschild, all of them possessing entire leaves and bright colouring. The last-named variety received an additional award of 1st prize and Silver Medal of Class II. For the set of three, a 1st prize and a Silver Medal were awarded. The last-named firm won a 1st prize for a plant of Dracæna Janssensii, a white and green-leaved species, with leaves of great breadth.

The finest plant of Anthurium Scherzerianum was shown by Messrs. F. Sander & Co., the spathes measuring 9 inches by 3 inches, and stalks of such a height as to carry the spathe well above the foliage (1st Prize and Silver Medal).

The best new single-flowered Azalea indica, a seedling or a graft, was Madame Osterreith, a very nice crimson-coloured flower, shown by M. J. Vervaene, Ledeberg; award, 1st Prize and a Silver Medal.

The best new double-flowered Azalea indicà was Ledeberg Wonder, shown by the same exhibitor; it was likewise crimson-coloured (1st Prize and Silver-gilt Medal); 2nd was Eug. de Cock, also crimson in colour, from M. Eug. de Cock; awarded a Silver-gilt Medal.

The best new single-flowered variety of Azalea indica obtained from seed was Minister Begerem, shown by M. J. Vervaene, a flower of large size, and of a nice shade of crimson.

The new Azalea indica Haerensiana was shown by J. B. Haerens & Wille, a handsome semi-double rose-coloured flower (1st Prize and Silver Medal of the 1st Class). MM. L. Eekhaute et Fils were 2nd for Azalea Mdlle. Emma Eekhaute, flowers rose bordered with white.

Three seedling Rhododendron rustica were shown by M. C. Vuylsteke, viz., Adonis, white and rose; Patrie, pale lemon-yellow; and Graciende, somewhat like the last in the shade of colour, but of semi-double form.

The same firm of nurserymen showed Anæctochilus Leopoldi, a handsome leaved species or variety, moss-green and black, tesselated with golden yellow lines. They also showed six plants of Kentia Alberti; and exhibiting in Class 120 of this section, they were awarded for three Caladiums a 1st prize, and Silver-gilt Medal for, viz., C. Chas. Vuylsteke, a crimson-coloured leaf with green margin; C. President Petrick, similar to the last but having a wider margin; and C. K. J. Kuyk, a variety with copper-coloured leaves spotted with crimson.

M. de Reusse, frères, of Saffelaere, Ghent, were awarded a 1st prize for Areca robusta variegata, the leaf tints being light and dark green.

A new Holly named Golden King, resembling in form of leaf Waterer's Silver Queen, came from Messrs. Little & Ballantyne of Carlisle.

Twelve small plants of Dracæna Godseffiana were shown in fine condition by Messrs. F. Sander & Co., extremely fine in tint (1st Prize and Silver-gilt Medal).

M. A. de Smet received a Silver Medal, 2nd class, for Anthurium Baron de Bieberstein, a variety with creamy-white spathe spotted with red.

A new Strawberry, Louis Vilmorin, very prolific, was shown by the Brothers Steynaert, Ghentbrugge, a 1st Prize and a Silver Medal was awarded.

Messrs. F. Sander & Co. showed in class 350, receiving 1st prize and a Silver Medal for an example of Acalypha Sanderiana, 7 feet high and widely branched; also twelve plants of Dracæna Sanderiana, and for these they were accorded 1st Prize and Silver-gilt Medal.

Besides showing new subjects in competition, this firm tabled a number of plants, some of recent introduction, as Alocacia Warreniana, Caladium albanense, C. venosum, Heliconia rubricaulis, Gardenia Stanleyana, an old species, rarely seen in flower, and received a Prix d'Honneur.

Clivias were rather numerously shown, and were good for the season, having large heads of flowers, and very vigorous in growth. The best single specimen in a tub was shown by M. V. de Brasschop, of Tronchienne, Ghent. It possessed fifteen flower-heads of fine form and rich colour, and was awarded a 1st prize and a Silver Medal.

CARNIVOROUS PLANTS.

M. Maurice Verdonck, nurseryman, Chaussée de Bruxelles, exhibited twelve Nepenthes of moderate size, including Chelsoni, Outrami, Sedeni, Stewarti, coccinea, Mastersii, and superba (1st Prize and Gold Medal of fifty francs value).

GREENHOUSE PLANTS.

Twenty-five Cape and New Holland plants were shown by M. Georges Fretin, Avenue de la Gare, Meirelbeke, mostly large, and well grown and flowered, varying in height from 3 feet to 6 feet, and proportionately broad. Particularly noticeable were Erica cucullata, a white, minute flower; Diosma alba, Acacia Drummondi, A. verticillata, a big plant, flowered in every part; A. grandis, Pultaenea stricta, Lithospermum fruticosum, a small plant, with flowers of bright blue; Boronia polygalifolia, and others; Brachysema acuminata, Metrosideros stricta, densely flowered, and several Cytisus (1st Prize, and a Work of Art).

The best twelve Cytisus racemosus of large size were shown by N. Léon Chysels, Rue de la Prarie, Ghent, short-stemmed standards, very well flowered. A 2nd Prize, and Silver gilt Medal framed.

For six of these plants on tall stems, 3 to 5 feet, strong, 1st and Enamelled Medal, to M. G. Fretin. The Cytisus, when grown of this form and size, make useful decorative material. Pyramids were likewise shown, but this form of distortion is not to be recommended for imitation.

Twelve Acacias, Cytisus, &c. In the best lot of these plants, we remarked Cytisus racemosus and Acacias paradoxa linearis, a densely-flowered plant; A. p. cordata, with long racemes of white flowers; A. lineata, A. lancifolia, &c. 1st, M. G. Fretin, 1st prize and Gold Medal.

The finest six plants of Metrosideros on tall stems came from the same exhibitor; they were profusely furnished with their bottle-brush-like flower-heads (1st Prize and a Medal).

The finest pair of plants of an Acacia were A. verticillata, shown by Mr. C. de Loore, Meirelbeke (1st Prize and Silver Medal).

Mr. C. de Loore showed the best couple of Choisya ternata, standards of 4 feet in height, furnished with crowns 2 feet in diameter (1st prize and Silver Medal, 1st class).

The finest grown Clianthus magnificus, measuring 4 feet by 4 feet, was that shown by M. Van Renterghem-Rombout (1st prize and Silver Medal, 1st class).

Boronia elatior is a plant that was often exhibited, and single plants, showing long-continued, careful cultivation, were shown.

The finest Pimelea was P. spectabilis, a plant 5 feet high and 4 feet in diameter, shown by M. L. Van Houtte (1st Prize and Silver Medal, 1st class). The same exhibitor had a good Erica Cavendishiana, that brought a similar award.

The finest Medinilla magnifica came from M. K. J. Kuyk, a very vigorous and massive plant, with strong racemes of flowers (1st Prize and a Silver Medal). The next best was shown by M. J. Borllens, Ledeberg, were bloomed, but less vigorous (2nd Prize and Silver Medal of 2nd class).

GREENHOUSE PLANTS OF COMMERCIAL SIZE.

Cold greenhouse plants were largely shown, such as those we have named, and Brachysemas, Correas, Diosmas, Eriostemons, Hydrangeas, Genista scoparius Andreanus, Leptospermum, Polygala, Boronias, Chrysanthemum frutescens, but little that would be of interest to our readers. The Ghent nurserymen are growing these Cape and New Holland plants extensively, and we shall doubtless see them re-introduced to general cultivation in a few years. Nothing can well be more beautiful for the decoration of the cool houses during the spring and early summer months.

AZALEA INDICA IN BLOOM.

For a collection of thirty-six plants of Azalea indica, 1st Prize and a Work of Art to M. J. Vervaene, Ledeberg, for neat examples 1¼ to 2 feet high and in diameter, capitally flowered, as were indeed the principal exhibits of Azalea indica.

M. Em. Vercauteren, of Mette, showed sixty Azalea indica, in small, round-headed examples. Very nice were Vander Cruysen, Victor Suvart, Cocarde Orange, Dame Melanie, J. Veitch, Jos. Vervaene, Bernard Andrea, Jean Peeters, Chicago, &c.; a very beautiful group of plants (1st Prize and a Gold Medal).

For a collection of 100 Azalea indica, 50 to 60 centimètres in diameter, there were several competitors, and the 1st Prize and a valuable work of art fell to M. Maekhout van Melle, Mont St. Amand. The plants were as well bloomed as possible, and nicely assorted as regarded colour. The varieties Coppe, A. Borsig, Marie Planchon, Ceres, Madame van der Cruysen, punctulata, Princess Louise, Duc de Nassau, and Apollon took our fancy, but selection was all but impossible where all were so good. Messrs. F. Sander & Co. were 2nd in this class, by a very slight difference, not in quality probably, but in the choice of colours. We noted Minister Léon de Bruyn, Helène Chelman, Hermione, Camille Vervaene, and President A. Van Geert.

M. Seraphin Aelvoet, of Wendelghen, was an exhibitor of sixty Azalea indica, small plants, including single and double flowered varieties, securing 2nd Prize and a Silver-gilt Medal.

Another sixty Azalea indica were those shown by M. Maenhout van Melle, very suitably assorted as regarded colour (2nd Prize and Gold Medal).

Semi-double, striped, and spotted Azalea indica were shown by M. K. J. Kuyk, namely, Madame Eulart, Madame Luvins-Spae, Arlequin, Pharailde Mathilde, Daphne, Madame Seidel, Eborina flore pleno, and others, twelve in all.

Mr. Kuyk showed a dozen single-flowered Azalea indica, and the varieties Media, versicolor, Neige de Cerise, Baronne de Vries, Reine Marie Henriette, Ceres, and Apollon were specially pleasing.

Then came a great number of classes of Azaleas, and in certain tints, and double and single flowers, low and tall stems, for which prizes were duly awarded; but the mere mention of exhibitors' names and addresses, and names of varieties, would occupy too much of our space. The great number of varieties, unknown or but little known on this side of the water, should stimulate our cultivators to grow them, nothing being more showy, yet delicate, than the colours of the newer varieties. We will name only one, Chicago, of which several big groups were shown, M. E. Vercauteren taking 1st Prize.

The courteous and indefatigable Mr. K. J. Kuyk was extremely fortunate in winning prizes with his Azaleas, and he showed in many classes. His single-flowered variegated varieties (twelve) gained him one 1st Prize and a Medal. In this group we noted Louise Van Houtte, Professor Walter, Dame Melanie, Madame Aug. Van Geert, and Reine des Amateurs.

Messrs. Haerens & Wille, at Somerghem, were winners of a 1st Prize and a Medal in double-flowered variegated Azalea indica.

A collection of 100 Azalea indica grown as low standards, which likewise consisted of the finest modern varieties, all of which were densely flowered, were shown by M. E. Vercauteren, of Mette. 1st prize and 250 fr. Good were Comte de Asambord, J. J. D. Llewelyn, Benjamin Sillence, Unica, Pharailde Mathilde, Johann Burscher, Perle de Ledeberg, Pres. Oswald de Kerchove, Madame J. Vervaene, Marie Vervaene, and many more very beautiful.

1st Prize and Silver-gilt Medal to P. Van Renterghem-Rombout, 547, Mont St. Amand, a very choice lot of standard Azalea indica, including Hermosa, a fine double rose; Chas. Lieven, fiery red, semi-double; Vervaeneana, Madame de Greve, Niobe, Pluto, a deep set, &c.

Azalea mollis and Ghent Azaleas were numerous and well grown, especially standards of the former, with 3 to 6 feet stems.

Ghent Azaleas, as bushes and low standards, flanked the central grass avenue, and contained most of the new varieties. These were shown by M. Jean Bracke-Beyst, Loochristy, near Ghent. They were an extremely floriferous lot of plants.

1st Prize and Gold Medal to Arthur de Smet for twenty Azalea mollis, in nearly all varieties of colour, and 4 to 6 feet high, were particularly showy.

M. David Wulteputte, of Loochristy, showed Azalea mollis as low standards, 2-feet stems, splendidly bloomed.

1st Prize and Silver Medal, 1st class, to Victor Vandewight, Loochristy, for Spiræa floribunda, a pretty white species.

RHODODENDRONS.

In this division there was provision made for numerous classes of Rhododendrons, which, however, were not well filled; in fact, Rhododendrons were few throughout. Some small plants were shown by Mr. David Wulteputte, mostly English hybrids.

Mr. K. J. Kuyk, who is the successor to M. Aug. Van Geert, received an Award of a Silver-gilt Medal for a group of R. Prince Camille de Rohan, a light-coloured variety, with a smallish, compact truss, and of free-flowering habit. Should make a good forcing variety.

CACTI.

Cacti were well represented at the exhibition, and five 1st prizes were gained by Frantz de Laet, Contich, near Antwerp, for Cacti and succulents; a work of art and 100 francs for ninety Cacti, Phyllocacti, Epiphyllums, &c.; Gold Medal for twenty-nine Agave, Aloe, and other succulents; Silver-gilt framed Medal for twenty-nine Cacti; Silver Medal of the First Class for twelve, and a Silver Medal for a lot of 200 Cactus seedlings. Specially remarkable were Cereus fragriformis, covered with over 200 flowers; C. lividus, 2 mètres high, and many others, all well cultivated, without a spine spoiled. Echinocactus Wislizeni, 2 feet across—a splendid plant; E. pilosus Stainesii; four E. ornatus, 1 foot across, all fine plants; E. texensis, 1 foot, with eight splendid pale yellow flowers; and a lot of other plants, all showing successful culture. The 200 Cacti seedlings also were much admired.

FOLIAGE PLANTS.

These formed features as groups, and as a mask to the walls (canvas) of the building. Being mostly contributed by the trade, specimens conspicuous for very large size were not observed, although much that was very creditable to the trade was seen on all sides.

As coming from M. DE SMET FRERES, we remarked a grand plant of Cycas tonkinensis of perfect form, furnished with a full crown of leaves, and of a height of 6 feet. The same exhibitor staged Livistona brachypoda, a compact-growing species, with broad, much divided leaves, obtaining a 1st prize in each instance, as also for an example of Chamærops humilis argentea, of a height of 6 feet, and very dense in growth.

M. K. J. KUYK exhibited a pretty lot (twenty) of Cocos Weddelliana. Dracæna Doncetti were shown as large and half specimens in cases, showing superior cultivation. One large exhibit and several small ones of climbing Asparagus. We noted A. comorensis, A. medius, A. scandens deflexus, A. virgatus, A. Brousonetti, A. Sprengeri, and A. plumosus nanus.

One good collection of twenty-five species of Ferns contained plants of Aspidium caryotæfolium, Pteris Wimsetti, P. Ouvrardi, Asplenium lucidum, Todea sps., Microlepia hirta cristata, Cibotium regale, C. princeps, Nephrolepis Giesbrechti, N. davalloides multiceps, Alsophila Moorei, and various Adiantums.

Of the striking-looking Dracæna Massangeana there were several exhibits, in large and small examples, and in every instance the plants were massive in habit and perfect in shape and in leafage. Extra good plants of Aralia Sieboldi, and A. S. variegata in dozens were noted, stems and foliage of great robustness. Dracæna Bruanti was well shown, also Pandanus Veitchi, not growing in very large pots, but yet furnished with strong foliage, having the variegation well brought out. Of this plant many exhibits were noted, some being of the customary commercial sizes. Araucaria excelsa, a plant made much use of on the Continent, was extensively exhibited from plants 1¼ foot high upwards.

The exhibitor of the finest dozen, M. K. J. KUYK, had A. cordata, A. Leopoldi II. (excelsa var.), A. albo-spica, A. viridis glauca, &c. The second best dozen, to which many persons would accord the first place, were shown by M. GEORGES FRETIN, and it included A. Cooki, Professor Mulleri, a species with upward-turned branchlets, very distinct; A. Cunninghami excelsa, A. C. glauca, A. Rulei, A. excelsa glauca robusta, A. Joseph Napoleon Baumann, A. Roi des Belges, an elegant variety of excelsa, and A. Bidwilli.

MISCELLANEOUS.

The BROTHERS DE GRAAF, of Leyden, exhibited Narcissus in considerable variety, including Barri, Poeticus, Leedsii, incomparabilis, Polyanthus, intermedius, bicolor, and Empress forms—an excellent representative collection. A Gold Medal was awarded for this lot. Messrs. BARR also exhibited in this section.

M. J. F. VERVAENE-VERVAERT & Co., Silver Medal of the 1st class for seedling Anthurium, new, of 1899, dull pink in colour.

Messrs. ROBERT P. KER & SONS, Aigburth Nurseries, Liverpool, showed a great number of plants of their strain of Hippeastrum, which resemble in most points those we are accustomed to see at the Royal Horticultural Society's meetings. They were awarded 1st Prize and Work of Art by acclamation.

A collection of useful and injurious insects were shown in glass cases by the *Tuin-en Landbouw*. Just what we require in England in all schools of horticulture. Each insect was designated by its vernacular and scientific name.

A few exhibits of twenty-four small plants of Citrus sinensis, profusely laden with ripe fruit, were remarked, their height being 2 to 2½ feet, and the form a columnar bush. The best were from M. E. LOSSY, Mont St. Amand, and the next best from M. JULES LOSSY, Cnudale.

MANCHESTER & NORTH OF ENGLAND ORCHID.

APRIL 27.—At a meeting held in the Coal Exchange, Manchester, on the above date, there were present Messrs. G. Shorland Ball (Chairman), G. W. Law-Schofield, A. Warburton, D. B. Rappart, P. Weathers, J. Cypher, R. Johnson, W. Holmes, and J. Mills (Hon. Sec.).

G. SHORLAND BALL, Esq., Wilmslow (gr., Mr. Gibbons), showed Cymbidium Ballianum (First-class Certificate); Odontoglossum Coradinei (Award of Merit); O. triumphans (Award of Merit); Phalæopsis Luddemanniana (Award of Merit); also a group of plants for which he was awarded a Silver Medal.

THOMAS STATTER, Esq., Whitefield (gr., Mr. Johnson), showed Lælia latona (Award of Merit), Epiphronitis Veitchi (Award of Merit), Cymbidium eburneo-Lowianum (Award of Merit), Eulophiella Elisabethæ (Award of Merit), and a group of plants (Silver Medal).

SAMUEL GREATRIX, Esq., Whalley Range (gr., Mr. MCLEOD), exhibited Cypripedium Chapmani (First-class Certificate), Lycaste Imperator (Award of Merit), &c.

J. LEEMANN, Esq., Heaton Mersey (gr., Mr. Edge), had Cattleya intermedia (Award of Merit), C. Schilleriana (Award of Merit), and a group of plants, for which an award of a Silver Medal was made.

A. WARBURTON, Esq., Haslingden (gr., Mr. Lofthouse), obtained a First-class Certificate for Cattleya Mendeli.

H. GREENWOOD, Esq., Haslingden (gr., Mr. Gill), showed Dendrobium nobile giganteum, H. Greenwood's var. (First-class Certificate), and Odontoglossum Hunnewellianum maximum (First-class Certificate).

Mrs. BRIGGS-BURY, Accrington (gr., Mr. Wilkinson), showed Cattleya Mendeli, Quorn House var. (First-class Certificate), and C. M. Duchess of York (First-class Certificate).

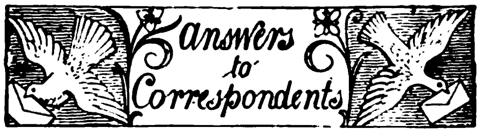
Messrs. SANDER & Co., St. Albans, Herts, were awarded a Cultural Certificate for a plant of Cattleya Schroderæ; and an Award of Merit for Cypripedium insigne, vars. Chantini × Chamberlainianum.

Messrs. CHARLESWORTH & Co., Heaton-on-Mersey, showed Cattleya Schroderæ Heatonense (First-class Certificate), Cypripedium Hyeanum (Sallieri Hyeanum × Spicerianum) (Award of Merit), and C. Manselli (Award of Merit).

TULIPA DIDIERI ALBA.—We hear that this rare Tulip is now in full bloom at Ard Cairn, Cork. In the bud state it is described as equal to a Niphetos Rose, with a frond of Maiden-hair Fern. The blooms are all perfumed similar to Sweet Pea.

ENQUIRY.

CROWN IMPERIALS and Double-flowered Daffodils, usually profuse in bloom, come up this year with abundant leaf and very few flowers. Can it be explained? They grow in a border somewhat traversed by tree-roots. *W. T., April* 29.



Answers to Correspondents

ANTS IN ORCHID-HOUSES: *Veritas.* Ants are better got rid of from the Orchid-house, and one means is to place in their runs a bone in a pan, and as often as the bait has attracted a sufficient number take it outside and pour boiling-water on it. Anything which attracts them to a centre may be used to trap them, and if they can be found in the house in numbers, and where killing them inside the house can be done without injury to the plants, boiling water may be poured on them.

BEETLES: *Windsor.* Next week.

CORRECTION: Our correspondent, "R. D.," wishes to correct a statement in his note on p. 258, upon the Vandas at Gunnersbury Park. There were 160 or so racemes of flowers, not this number of single blooms.

CUCUMBERS, TOMATOS, AND BEGONIAS: *R. W.* The Tomato and Cucumber plants have been attacked by fungi common in forcing-houses. The fungi may be temporarily checked by spraying with potassium sulphide (½ oz. in each gallon of water), or Bordeaux Mixture. The real reason for the trouble is that the air and moisture of the house are unsuited to the plants. Have you not too severely forced the plants? Endeavour to obtain a more vigorous growth, by using a little less fire-heat, by the admission of fresh air on all occasions when the conditions of the weather outside are suitable, and by securing as much light to the plants as possible. The injury to the Begonia is caused by a mite, and may be remedied by dipping the plants in Tobacco-water or by treating them with Tobacco-powder. Further particulars of this pest to Begonias may be found in the *Gardeners' Chronicle* for November 9, 1895, p. 544, and November 16, 1895, p. 586.

DAFFODILS: *G. K.* They have been allowed to suck up some aniline dye. We should not advise you to buy any bulbs.—*A. C.* You should get Burbidge's *The Narcissus*, L. Reeve & Co.

IMANTOPHYLLUM: *G. B.* Yes, there are many varieties.

LOW TEMPERATURE: *R. F.* The winters of 1879, 1880, and 1881, were remarkable for hard frosts throughout England, Wales, and Scotland, and numerous exotics of reputed hardiness were either killed or badly injured. On December 4, 1879, 12° below zero, or 44° of frost, were noted in Peeblesshire.

MANURE: *Windsor.* What you send is sulphate of iron or green vitriol. It is useful as a manure, and is specially recommended for Roses. A quarter of a pound to a gallon of water.

MISLETO ON OAKS: *H. I. R.* The species found on Oaks and Chestnuts in Italy is Loranthus europæus. That which grows on Apples, Maples, and other trees is Viscum album. A third species, Viscum laxum, is said to grow on Pinus sylvestris, in the Valley of Non.

MUSCAT OF ALEXANDRIA GRAPE-VINE: *Anxious One.* The bunches present the appearance of having been checked by cold. Perhaps you do not close the vinery early enough in the afternoon.

MUSTARD IN AN HOUR: *Subscriber.* Nonsense.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—T. N., Epsom.* 1, Berberis Darwini; 2, Berberis, seedling from Darwini apparently; 3, Forsythia viridissima; 4, Skimmia japonica; 5, Cedrus, perhaps C. atlantica.—*A. A. Dalzell.* Leucothoe axillaria.—*Molesey.* Pyrus salicifolia.—*A. M.* 1, Oxalis Ortgiesiana; 2, Marjoram; 3, Thuya orientalis variety; 4, Juniperus virginiana variety.—*R. G. J.* Tritonia crocata, Cape of Good Hope.—*J. L.* 1, Skimmia japonica; 2, Spiræa prunifolia variegata; 3, Acorus gramineus variegatus.—*W. D.* The Codiæums (Crotons) are—1, superbum; 2, Laingi, or Heathi elegans; 3, Queen Victoria; 4, Disraeli. We cannot name the Rhododendrons from the flowers sent.—*F. O.* 1 and 2, Dendrobium thyrsiflorum; 3, Dendrobium cariniferum; 4, Dendrobium Boxalli; 5, probably Dendrobium Devonianum — flower withered.—*J. E.* Albuca species (probably minor), but we cannot be sure of the species without seeing leaves.—*W. and S.* The specimen was withered. It is best to send specimens of Roses to a nurseryman who grows them largely. They can be compared by him with living specimens.—*L. B.* The miserable scrap was dried to tinder when we received it. It is probably the Snowy Mespilus, Amelanchier vulgaris.—*No Letter* (received in a new year's card box). The scented Pelargonium is P. crispum, the other plant Sedum Ewersii.—*C. S., Ipswich.* 1, Celsia cretica; 2, Asplenium bulbiferum biforme; 3, Hoya carnosa; 4, Adiantum formosum; 5, One of the Daturas, but not recognisable without flower; 6, Asplenium bulbiferum.—*J. S. U.* Skimmia japonica.—*G. W. C., Aberdeen.* The variety of Cattleya Schroderæ is very distinct, the other species also good. The rose-tinted bloom is Vanda Parishi Marriottiana, the small Odontoglossum a variety of O. × Andersonianum.—*F. P.* Ornithogalum nutans.—*A. R.* 1, Phalaris arundinacea variegata; 2, Aubrietia deloides purpurea; 3, Corydalis lutea; 4, Lastrea species, send mature fertile frond; 5, Send in flower; 6, Sedum rupestre; 7, Polypodium glaucum; 8, Cyrtanthus species, impossible to say which without flowers: 9, Adiantum formosum; 10, Polystichum angulare proliferum.—*J. A.* Eriobotrya japonica (Japanese Medlar).

NURSERYMEN'S PROTECTION SOCIETY: *E. J. A.* You had better communicate with the Nursery and Seed Trade Association, Ltd., 30, Wood Street, Cheapside, London, E.C.

PELARGONIUMS: *F. E.* We cannot undertake to name florists' varieties. Send specimens to some grower.

ROSE MADAME LOUIS CARIQUE: *S. S.* This variety is mentioned in Max Singer's *Dictionnaire des Roses*, where it is described as a H. P., of average size, full, and in colour vivid carmine.

STRAWBERRY-LEAF DISEASE: *J. G.* Your leaves are attacked with the fungus Sphaerella Fragariæ, figured in *Gardeners' Chronicle*, June 28, 1890, p 799. A weak solution of the Bordeaux Mixture will be found useful in this case, and the best time to apply it is once in every two weeks when the crop has been gathered. The dressings may be continued until September.

TULIPS: *S. W.* We should be inclined to blame the mice or wireworms for the damage done. Can you send a few bulbs for our inspection?

COMMUNICATIONS RECEIVED.—F. M.—E. C.—W. B. H.—M. D.—A. C.—M. M., Geneva.—H. I. R., Florence.—H. H. H.—Sir J. L. — C. B. P. · J. Chilcott — R. Milne-Redhead. — T. Roberts.—W. E. G.—John Russell.—Visitor.—D. T. F.—Rev. Hilderic Friend (next week).— H. H.—A. C.—Sir C. S.—T. C.—Lord I.—J. K.—C. R. F.—G. G.—E. C.—R. W. A. – C. T. D.—A. C. F.—C. S. F.—E. Branch, Windsor.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS—R. C. H. (many thanks; not suitable for figuring).—A. C. (many thanks; useful).—J. George (very fine plants; we have, however, figured similar ones on many previous occasions).

(*For Markets and Weather, see p. x.*)

THE
Gardeners' Chronicle
No. 646.—SATURDAY, MAY 13, 1899.

THE CLYDESDALE ORCHARDS.

At a recent meeting of the Scottish Horticultural Association held at their Rooms in Edinburgh, Mr. Wilson, of Murdostoun, Lanarkshire, himself a large grower for market, gave an account of the orchards of Clydesdale.

Mr. Wilson began his lecture by paying an eloquent tribute to the picturesque beauty and fruitfulness of the Clyde valley, the abundant crops yielded by the orchards, uninjured by surrounding manufacturing and commercial establishments; the huge boughs of the fruit trees overhanging the hedges near Braidwood, the palatial homes of the Grahams. The aspect and the soil of this locality are specially suited for fruit growing.

A few of the more notable orchards that stand out prominently for high cultivation are Cozy Glen, Dalzell, Brownlie, and Garrion. Some of these orchards receive as much as 40 to 50 tons of farmyard manure a year. Few or no weeds are visible, and almost fewer signs of starving the land or slovenly culture can be seen in Clydesdale. On the other hand, preserve and jam factories abound in all directions. Thus, the proprietor of an orchard can readily convert the perishable, soft fruits into commercial commodities within easy distance.

Most of the growers have added Tomatos, florist's flowers, and nursery plants as well as vegetables to the products they cultivate. Dealing in poultry, milk, butter, and pigs are also commonly engaged in. Young trees are also preferred to old ones, and though several old orchards are still to be found in Clydesdale, some few years ago the fruit from an old orchard at Carsethorn realised the sum of £1000, the orchard being 30 acres in extent.

Cropping between the trees, unless for cleaning purposes, is generally condemned. Growers are also careful to secure the best skilled labour obtainable for such orchard-work as pruning, digging, and planting.

Lord Hamilton of Dalzell has enclosed 10 acres with wire-fencing, and made colossal runs for 300 fowls, for the double purpose of benefiting both fowls and fruit-trees and bushes.

Clydesdale has long been famed for its fruit, and at no period has the industry been engaged in with more spirit and more money invested in it, and more skill shown, than is the case there to-day. Only through skilful culture and carefully disposing of the best fruit can success be realised. The people are awaking to the vital importance of fruit, and the demand grows and ready markets are always open.

The proprietors of the land are mostly the large landlords of the district, between whom and the tenants the kindest feelings and pleasantest relations exist. Among these, the following are the chief:—Lord Belhaven, Wishaw; James Hamilton Houldsworth, Coltness; Lord Hamilton, Dalzell; Lord Newlands, Mauldslie Castle; James Scott, Garrion; Henderson Hamilton, Dalzell; Major-General Lockhart, Cambusnethan; their palatial homes nestling more or less close to the comfortable dwellings of the fruit-growers. A visit to Garrison Bridge at the annual sales, or to any of the commercial centres, will quickly convince anyone of the business capacity of these hard-handed, clear-headed sons of toil. And the growers are as expert in handling the spade and pruning-knife as in driving bargains. Gooseberries, for example, having special treatment in Clydesdale, abundance of young wood being left unshortened, carry immense crops of fruit. The gatherers of Gooseberries are also experts, equal to gathering from 3 to 4 cwts. a day, and earning from 2*s.* to 3*s.* 6*d.* in wages.

As to manures, some apply it annually; others every second, third, or fourth year. Most of the growers prefer farmyard, others artificial manure. Two of the best professional growers, Mr. Deans, of Garrion Towers, and Mr. Angus, of Dalzell, strongly recommend gas-lime and bone-meal, the lime to be exposed a year before applying it. Mr. Deans applies bone-meal in the spring, at the rate of one ton per acre, with grand results to fruit-trees and Gooseberries. The fruit on the 10 acres of the Dalzell orchard was sold on the trees for £321, being an average of £32 per acre. Surface-mulching instead of digging has not answered in Clydesdale; and in orchard-cultivation the digging-fork has almost superseded the spade.

The Kinds of Fruit Grown.

Some thousands of acres in Clydesdale are under Strawberries, and the prices given for the fruit last year ranged from £30 to £38 a ton, a crop from three to five tons per acre being the average. Garibaldi and Elton Pine are still favourite varieties, though the new variety, Royal Sovereign, is making progress. The plants are mostly grown in 4-feet beds, and they are allowed to stand for five years. This Clydesdale fruit follows closely on the heels of the English supplies. Gooseberries are second to Strawberries in commercial importance, and Whitesmith, Red Warrington, and Sulphur are the leading varieties. Early Kent, Crown Bob, Lancashire Lad, and Whinham's Industry, are also popular. Gooseberries range in price from £8 to £12 per ton, and an acre four years planted yielded last season 4 tons 2 cwt.

This is Mr. Wilson's short selection of Apples complete: Dickson's Ringer is the best for cold districts; Cambusnethan Pippin, Stirling Castle, Beauty of Murray, Ecklinville, Cellini, Fulwood, Norfolk Beaufin, and Lord Suffield.

Pears again nearly all do well, particularly Williams' Bon Chrétien, Moor Fowls-egg, Beurré Hardy, Beurré Diel, Marie Louise, Thompsons, and a few other varieties.

Of Plums vast quantities are grown for marketing and preserving. Victoria, Kirkes, Coe's Golden Drop, Magnum Bonum, Jefferson, Orleans, and Pershore, being the favourites. They are mostly grown as pyramids or bushes, and kept in a fruitful state by lifting and root-pruning.

Currants, either red or white are not popular fruits. The red and white Garrion Tower Currants have been so well grown as to command prices of from £16 to £18 per ton. There is not much demand for Cherries, though the Morello does exceedingly well.

Raspberries are rising in popular estimation, Fillbasket, Superlative, and McLaren's Prolific being the favourite varieties, the best crops being obtained in most instances from land that is mulched with manure and not dug yearly.

Black Currants do well, but the Currant-bud mite has proved a sore trial to the cultivators, and, so far, it has resisted all remedies. Mr. Wilson recommends frequent planting with clean young stock, bought at a distance. The Clydesdale growers mostly plant varieties which they distinguish by the names green and brown-budded.

The secret of success, said the lecturer, consisted of brains, energy, soil of the best, a hopeful disposition, and indomitable perseverance. The crazes for cheapness, the effects of foreign competition, of high rents, rates and taxes, the cost of manure—all tended to make success more difficult every year. Still, the great home industry of fruit-growing in Clydesdale grows and expands.

The fruit despatched in 1896 by railway amounted to between 3000 and 4000 tons; and by road for short distances, 300 tons; of Strawberries, 200 tons; and Gooseberries, 350 tons; and Plums, Apples, and Pears in enormous quantities were sent away.

So far as sewage has been used in fruit-growing in Clydesdale, it seems to have been successful. Mr. Wilson concluded his paper with a few statistics that should fill fruit-growers with hopefulness for the future.

Some years ago a grower set aside 25 acres of his best land for growing Strawberries, and McLaren's Prolific Raspberries. He dressed it with 60 tons per acre of farmyard manure. The returns last year from this land reached £1,950. True, the expenses, labour, rent, rates, &c., have to be deducted from this big gross sum, but surely enough would remain to satisfy the most ambitious, after all the claims of capital, labour, and skill had been abundantly satisfied. *D. T. F.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM WARDIANUM ALBUM.

The colours of the typical D. Wardianum are so bright, and the dark blotches on the labellum so distinct, that an albino form is very remarkable. The variety candidum is pure white with more or less traces of the dark-coloured blotches at the base of the yellow disc.

D. W. album, in which no trace of the dark markings appear, first flowered in the Downside collection, and later, but very rarely in other gardens; a fine form of it being figured in *Lindenia*, ix., p. 73, as D. Wardianum Lindeniæ. An equally good example of it has now bloomed with H. Cary Batten, Esq., Leigh Lodge, Abbot's Leigh, Bristol, the plant being a newly imported one with seven strong leading growths. The flower sent is pure white, the only colour present being the orange disc. *James O'Brien.*

Vanda teres.

This beautiful Orchid is making a fine show in the Cattleya-house at Parkfield, Worcester. The plants are cultivated on teak rafts placed at the end of a span-roofed Banana-house, where they are exposed to all sunshine. They are heavily syringed throughout the summer, but are kept drier during winter. The two largest rafts bear over forty spikes of bloom, and the others are equally well flowered. Altogether there are over 200 spikes. They vary both in size and colour. Some of the flowers are very light, being nearly pure white, and one variety has especially large and dark-coloured blooms. There are some blooms open at most seasons of the year. V. Hookeræ succeeds under the same conditions, but does not flower so freely. Epidendrum bicornutum, suspended from the roof in pans, without any shade, flowers from every young bulb.

In another house Vanda insignis and suavis are flowering well. Eulophiella Elisabethæ has two spikes, with twenty-five flowers and buds on each. *S. W.*

WHEAT AND TULIPS.*

(Continued from p. 275.)

THE GARDEN TULIPS.—The introduction of these to European gardens is, thanks to the sensation they caused from the first, tolerably well known. When Augerius Ghislenius Busbequius, the ambassador of the Emperor Ferdinand I. to the Sultan, in 1554, arrived in Turkey, he saw flowers of these varieties for the first time in a garden between Constantinople and Adrianople.

The origin of our word Tulip is traced from the Persian "Dulben," the Nettle-fibre cloth (Urtica dioica), such as the Turks bind round their fez, and this head covering resembles the cup of the flower. The Turkish name of the flower is "Lale." It is probable that one or another Tulip may have flowered in Venice at an earlier date. As Professor Cohn informed the author, there is a large picture in the Hof Museum of Vienna, by Vittore Carpaccio (scholar of Giov. Bellinis, 1522), portraying Christ surrounded by angels, on the arch of which flowers of Leucoium, Narcissus pseudo-Narcissus and yellow and red Tulips can be discerned. The flowers are, as I have myself remarked, so indistinctly drawn that it is impossible to identify them with certainty.

We are then told that C. Gesner, in 1559, saw the first garden Tulip in Europe outside of Turkey, in Heinrich Herwarth's garden at Augsburg, and in 1561 he wrote a description of it; and this species was none other than our present T. Gesneriana. It is very probable that this Tulip was raised from seed which Busbequius, who had greatly enriched European gardens, had either brought or sent home; and there is nothing which could render that unlikely, excepting the brief period of time—1554 to 1559.

It is known that seedling Tulips flower the third year, and in four or five years this circumstance is of common occurrence. But the Tulip had got sooner into the hands of the Dutch than of Clusius, for we read that, in 1570, it had got to Mecheln (Malines), the third centre of distribution; and the apothecary, J. Muler, concocted a preserve of the bulbs with sugar, which he found much superior in sweetness and flavour to that made from Orchid tubers!

In the year 1577 a red-flowered Tulip was seen in Brussels for the first time, from the seed of which Boisot and several "*nobiles matronæ*," raised variously-coloured progeny. From this Boisot seed sprang our Tulipa Gesneriana, bulbs of which bloomed at Frankfort in 1590.

Independently of Clusius, the Tulip had already reached Holland, for it is related that the Amsterdam apothecary, Wallich Zieuwertsz, to the great astonishment of everyone, had some in flower. When the celebrated Clusius removed to Leyden, he took some of these Tulips and other rare plants, such as Scilla peruviana (which sold for 40 florins per root); the first Lilium imperiale (Crown Imperial), valued at £7; and other plants, which no one else possessed, and which were not to be purchased for any money. In 1590 we find this T. Gesneriana by Jan von Hoghelande of Leyden, and by Prediger Joan de Jonghe of Middleburgh in 1596.

As money could not buy Clusius' plants, it was only natural that people should form a plan to steal them, which was done by night, the finest and best being taken; whereat, it is related, he lost heart and energy. Having stolen the bulbs, the thieves made every effort to increase the stock of them by sowing seeds and in other ways, so that it was asserted that the seventeen provinces of Holland were filled with them.

In England, the introduction of the garden Tulip is traced to Clusius, who sent some bulbs from Vienna between the years 1578 and 1582.

We learn from the *Biographia Britannica*, vol. iv., p. 2462, in instructions from Hakluyt the elder, printed for the use of English merchants, concerning articles of commerce in Turkey, "and now within these four years there have been brought into England from Vienna in Austria divers kinds of flowers called Tulipas; and those and others procured thither, a little before from Constantinople, by an excellent man called M. Carolus Clusius."

According to G. Kraus, the Tulip reached Montpellier in 1598, and in other towns, as Aix in Provence; in 1596 it was found at Lucerne, and gradually spread all over central Europe.

At one time it was believed that the Tulip owed its numerous colour variation to good culture in the Netherlands, and that in its eastern home red and yellow varieties existed. But this is an error; for, according to Clusius, the seeds he received from Busbecq produced at once a number of varieties, a circumstance that could not have occurred had the Turks possessed only two varieties. That the varieties were many is proved by two Turkish MSS., secured by Diez, and now in the possession of the Berlin Library, one of which he completely translated into German, and of the other only a portion.

The first of the two MSS., entitled *Die Wage der Blumen* (The balance of flowers), was written by the sheik Mahammed Lalizari, who lived under the Sultan Achmed III. (1703-1730), and more directly under the great Viziriate of Ibrahim Pascha (1718-1730), and for whom the MS. was written, which is proved by the remark on the first page where he says that Ibrahim caused him to write it. Lalizari stood well at the court of the Sultan, and received from the latter the cognomen, Schukjufé Perweran (kenner of flowers). This little work of Schukjufé Perweran was carried out with tolerable thoroughness under two headings, of which the first described the twenty properties of beauty, and the second gave directions for cultivating Tulips from bulbs and seed.

A concluding chapter treats similarly of the yellow Narcissus. A number of varieties of Narcissus and Tulips are mentioned, some casually, and others as affording examples, many of them being designated by, to us, very familiar names. The second Turkish MS. carries the title "Amenity and Beauty," and consists of a systematic catalogue of various sorts of plants, affording the names, the country of origin of the seed, and description of the flower, but never stating which kind of plant is intended, but which Diez believed to be a byblœmen Tulip. As the author mentions 1,323 varieties, and describes seventy-four fully, an idea may be formed of the variety of the Tulip culture in Turkey in that age. And further, Diez calls attention to the fact that "the twenty rules of beauty" agreed in their limitations with those current in all civilised European countries, with a few exceptions in particulars. He alludes in this matter to the clear and precise statement of the same by Philip Miller, and draws the conclusion that these rules at the introduction of the Tulip formed the foundations of its cultivation in Europe. The only difference in the rules consisted in the Turkish Tulip having a pointed petal, whilst Europeans preferred a rounded one; and, in fact, all of the original Tulips brought out of Turkey, as is seen in Clusius' drawings, belonged to this category.

To-day, in Holland, Tulips are divided into two classes—selfs, or Mother Tulips (breeders), (French colours), and variegated or broken (French Paragons); and these are again divided into two principal sub-classes, Bizarres with yellow grounds, and a variety of markings, and Flamands, which have white grounds; and when the variegated markings are of a violet tint, they are known as Bylœmens, and when these are red they are designated Roses.

The several coloured Tulips, the so-called Masquetrines of the old French nomenclature, were never held in any great esteem in Holland.

All the celebrated old varieties, as Semper Augustus, Admiral Liefkens, Gouda, &c., of which coloured drawings still exist, were simply "byblœmens" or "roses."

The first double Tulips appeared about 1665, which the Count finds mentioned by Vallot as T. lutea centifolia; another, called Sol, mentioned by Tenzel, 1690, had 24 petals; and another, Solo Sicut Sol, with 200 petals; which he said he should value more than Semper Augustus; and others are mentioned under various names, so that double Tulips began to appear in Europe at rather early dates.

The so-called Papagie Tulips (Peacock vars.) appeared towards the end of the 17th century.

We may in an early issue of the *Gardeners' Chronicle* continue Professor Count Solm's story of the Tulip in Europe, and deal more especially with the so-called Tulip mania of the seventeenth century.

FRUIT GROWING.

EXPERIMENTS in fruit-growing have been in progress at the Agricultural Station of Laramie, Wyoming, since 1892, under the direction of Mr. B. C. Buffun, M.S., and the results which have now been published demonstrate to those who are looking for homes in the far West the fact, that Wyoming has horticultural possibilities of her own; and we think the facts may, further, be useful to fruit-growers in the old world.

The soils of the State are, as a rule, quite rich in the inorganic plant-foods, principally lacking in humus or vegetable mould, which supplies nitrogen. It is found advantageous to supply fruit, more especially orchard fruit, with some fertiliser rich in potash. Wood-ashes, when they can be obtained, answer the purpose well. Farmyard manure has proved a perfect fertiliser, and is used abundantly.

In deciding upon the location of an orchard, which is always an important step, it is stated that a north slope is preferable, because the snow stays longer in winter, and the buds are not apt to start too early in the spring. A well-drained soil is strongly recommended, because fruits should not be made to take up more water than they actually need. The amount of water required depends on the character and slope of the soil and subsoil, the condition of the weather, the kind of tree, whether in bearing or not, and the season.

In some orchards fruit trees are so disgracefully pruned, that a word of protest is added. In amputating the limbs of a man, it may be wise to take it off as far from the trunk as possible, but in pruning fruit-trees always pursue exactly the opposite policy. Many make a practice of cutting off limbs 2 or 3 inches from the trunk or main branches, which makes stubs that die and leave behind a diseased place or ugly scar. Whenever a branch or limb is removed, it should be cut off as close to the trunk or branch upon which it grows as possible, making a smooth cut, over which the bark will grow and hide the wound.

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* *Weizen und Tulpe und deren Geschichte*, von H. Grafen zu Solms-Laubach, Professor der Botanik an der Universität, Strasburg. (Leipzig: Verlag von Arthur Felix, 1899.)

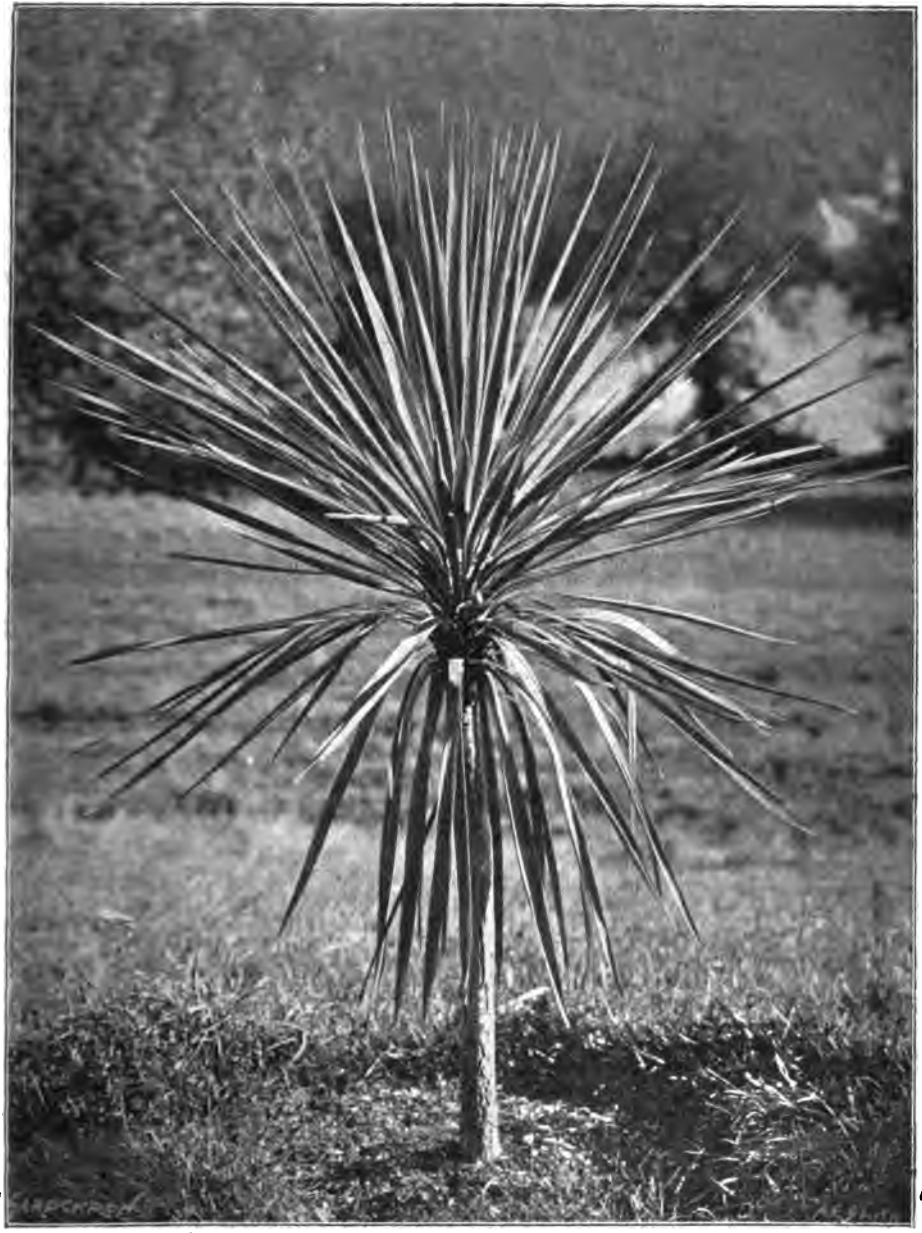

Fig. 106.—Dracæna Doucetti foliis variegatis.

In cutting-back the tops of trees, the method preferred is to make slanting cuts with a sharp knife or axe, rather than sawing the limb squarely off. In cutting-back top branches, cut off just above a bud or branch, so that there will be little or not any of the branch left which will die below the cut. Any serious pruning of the Apple should be done in the spring, before the buds swell. Cherries and Plums should be pruned in the summer, for if they are cut at other seasons, gum exudes from the wounds.

Summer pruning should never be severe, but should consist in rubbing-off buds which are developing where they are not wanted, and pinching-back slender shoots to increase fruitfulness, and make a well-formed tree.

Give orchards clean cultivation, never allow weeds to grow, and give the surface of the soil a shallow cultivation often. It is not recommended to grow any kind of Grass in the orchard. If crops are raised on the land between young trees, they should be planted some distance from them, and should consist of some hoed crop, which require shallow culture, and does not grow tall enough to shade the trees.

Rows of Currants and Gooseberries may be planted between the Apple-rows, but such fruits as Raspberries are not so good, as they grow tall, and require digging for their winter cultivation, that the roots of the trees are apt to be injured.

Raspberries succeeded remarkably well in this State, and the following results are quoted: Red varieties gave an average yield of 1400 quarts per acre. Yellow varieties gave an average yield of 920 quarts per acre. Blackcaps gave an average yield of 830 quarts per acre. The yields computed for the two seasons 1895 and 1896 give an average for all varieties grown of 953 quarts per acre. The market price was 25 cents per quart, giving an average value of 238·25 dollars. The cost of raising a crop of Raspberries is estimated at 18 dollars. This, with the total expense of picking and marketing the berries would make the cost 65·65 dollars, which leaves a net profit per acre of 172·60 dollars, equal to £35 19*s.* 2*d.* per acre.

Strawberries grown in 1896, in thirty-one varieties, gave an average yield of 6920 quarts per acre. The prices ranged from 10 to 15 cents per quart. Taking the lowest price, all varieties, good, bad, and indifferent, would have an average value of 692 dols. per acre. The estimated cost of raising an acre of Strawberries is put down at 93 dols. It is thought this would set out a new acre of the very best plants every year, allowing 4 dols. per thousand for the plants. Three cents per quart would be a liberal estimate of the cost of picking, boxing, crating, and hauling to market; or a total of 208·60 dols. per acre. The total cost, including picking, setting out new beds each year, &c., would be 301·60 dols. This leaves a net profit per acre of 390·40 dols., equal to £81 6*s.* 8*d.* per acre.

The largest yield of Strawberries per acre in 1896 was with the variety "Jucunda Improved," which gave 11,645 quarts; the second-best was "Pride of Berries," which yielded 11,220 quarts per acre; and the third-best was "Edgar Queen," which produced 10,285 quarts per acre.

These experiments indicate the success which may attend the careful fruit-grower, and the importance of the fruit industry in that country. *J. J. Willis, Harpenden.*

DRACÆNA DOUCETTI FOLIIS VARIEGATIS (Fig. 106).

This handsome variegated-leaved Dracæna has now stood out in front of my house without my protection whatever for nearly four years, having been planted out in the summer of 1895, after the severe and destructive frost of January 4, 5, of that year, which, had it been exposed to it, would doubtless have killed it to the ground at all events, as it did a fine 15-feet-high specimen of D. australis, which however has shot up again with great vigour, and has already attained to more than half its former height. The amount of frost experienced here was 29° for one night, 27° and 25° for the two following, and then a complete and rapid thaw. *W. E. Gumbleton.*

CHISWICK.

Time was when this much-honoured garden was difficult of access, but that drawback exists no longer, rail and tram afford frequent and rapid conveyance, and the gates of the gardens are always open in proper hours to visitors. They preserve to Chiswick an invaluable open space.

An inspection of the Chiswick Gardens shows great promise for the coming season, and many trials of interest are being carried out, which will be of interest not only to ourselves but to the numerous foreign "raisers," who, it is hoped, will visit us this summer on the occasion of the Hybridisation Conference. At the outset it may be stated that the condition of the grounds is excellent. Here and there is a section of a border waiting tillage and replanting, but such spots are few. The visitor cannot but feel that the Council in appointing Mr. S. T. Wright as the superintendent of the gardens to carry on the work so well performed for so long a period by Mr. A. F. Barron, made a happy choice.

Leaving the Council chamber, and going to the right, to the northern wall, there is to be noticed a rare trial of Violas, six strong plants of each variety appearing in each row, the trial reaching the whole length of the border, all the leading varieties being included in it. The cordon Peach and Nectarine trees on the wall on the left-hand show a thin crop owing to the action of the keen frost at the end of March, though the trees were protected by a double covering of netting. Then, turning southwards by the eastern boundary, Mr. Wright points out that the border by the wall is to be employed for a thorough trial of French Beans. The cordon fruit-trees on the wall are generally full of blossom. On the right hand, in addition to the old plantation of bush Apple-trees, a new one has been planted, and as a means of quick identification, the varieties are arranged alphabetically, running from east to west. This occupies the site of what was formerly a thicket of Plum-trees.

What was formerly a plantation of old Apple-trees, is now devoted to Strawberries and trials of vegetables, and adjoining this and reaching nearly to the great vinery, is a plantation of Plum-trees also alphabetically arranged. An inspection of the large vinery shows that the rods are making vigorous growth; and here it may be said that, in common with the vinery, the Pear-trees on the west side of the main dividing-line of wall promise unusual fertility, being full of blossom.

The rockwork at the west-end of the vinery is shortly to be remodelled and replanted; the collection of Primulaceæ, presented by Sir John Llewelyn, Bart., have not succeeded well, and will be transferred to pots. The broad border on the right of the walk, leading westward from the vinery, is to be planted with Cactus and Pompon Dahlias, which will form an interesting and valuable trial. In some of the beds on either side of the walk are some new species and varieties of Tulips, sent by Messrs. J. Veitch & Sons.

Southward there is a large trial of Peas, also of newer varieties of Potatos, Sweet Peas, and there is a large batch of Mr. Martin Smith's Carnations, looking remarkably well and growing vigorously. It should be said that on the north side of the large vinery there in an important trial of spring-sown Onions. There are also Cauliflowers in frames ready to be put out in the open.

The pits are full of interesting plants, and among them some hybrids sent by the Rev. C. Wolley-Dod, for the proximate conference. In the propagating-house is a trial-selection of Caladiums. In the Tomato-house is a large collection of plants in pots commencing to make a vigorous growth. The old vinery, in which the plants are of considerable age, promises exceedingly well, and so do the other houses devoted to Grape culture. The house of Figs looks capital; there is an abundant promise of fruit on every hand, and in the Peach-house the planted trees and those trained against the back wall are rich in promise.

This is but a hasty sketch of what may be regarded as the programme for the season at Chiswick. Given favourable weather, high development may be looked for, and the Fellows of the Society, if they will but pay a visit to the Society's gardens during the summer will find much to interest and instruct. *Wanderer.*

THE HARDY FLOWER GARDEN.

THE MUSCARI.

AMONG the most troublesome of all tasks to which a gardener can set himself, is that of verifying the nomenclature of certain plants. The more one works among these, the more necessary does it appear that some one would take them in hand and give us, not only careful scientific descriptions, such as appear in the *Gardeners' Chronicle*, but also faithfully coloured illustrations. In some genera verbal descriptions, however careful and precise, are not enough to meet our difficulties, nor can the dried plants in herbaria fully show the minute distinctions needed in some cases. Those who have ever tried to solve the puzzles presented by the Muscaris or Grape Hyacinths will agree with the writer in thinking that few genera present more difficulties. Could we but have a series of monographs, such as that of the Lilies, by Mr. H. J. Elwes; that of the Croci, by Mr. George Maw; or the forthcoming one on the Narcissi, by Mr. F. W. Burbidge, we should have less difficulty. Unfortunately, the writers who possess the combination of talents necessary for such work are exceedingly few, and it must be admitted that those who would seek to possess these monographs would be small in number, and would be still further reduced by the unavoidable cost of production of such works. In writing then of the Muscaris, it will, I hope, be accepted as a necessary proviso that I do not profess to say with authority that all of the Grape Hyacinths named are without dubiety so far as regards their nomenclature. The difficulty has been much increased by the impossibility of keeping a collection separate. They seed so freely, that in the course of a short time they are almost hopelessly intermingled, and could only be separated by one who thought of little else but Muscaris, and whose knowledge of the genus was more precise than most mortals can ever acquire.

Some few years ago, I made a collection of all the Muscaris I could obtain. They were planted side by side, and now the confusion is complete; and the only way to deal with them, is to remove them while in bloom with as much regard as possible to the necessity of putting the right tally to the right plant.

One cannot but advance strongly the proposition that the Muscaris are not enough grown. Their beauty is great. Even at the risk of quoting familiar words, one can hardly refrain from giving Ruskin's graphic and picturesque reference to the flower in the lecture on "Athene in the Earth," which is to be found in *The Queen of the Air*. He says:—"The Grape Hyacinth, which is, in South France, as if a cluster of Grapes and a hive of honey had been distilled and compressed together into one small boss of celled and beaded blue." As we look upon the flowers now in bloom amid the grass, in the borders, and in the rock-garden, we think how well our great English writer has depicted their beauties. Those of us who take delight in such things are not content with the flowers of "celled and beaded blue," but none the less do we admire them, although we seek to grow the varieties given us by the operation of Nature's laws. These are of other colours or of other shades than those of which Ruskin spoke, but we may yet say that no flowers are more beautiful than those whose colouring and form met with the approval of his artist eye. The others have their beauties too, and we see them with pleasure, whatever the colour of their flowers. Black-blue, cobalt-blue, azure-blue, pearl-blue, pure white, flesh-white or pink; all are alike lovely to those to whom flowers give joy. Some may have some reservation in saying as much of the Musk Hyacinth or M. comosum, both of which appeal, perhaps, to our other feelings more, but even these possess much of interest.

Before I proceed to say something about the species and varieties which I have seen or grown, it may not be unprofitable to say a little about their cultivation, although, under this heading there is not much room for discussion. Nearly all the cultivated plants give little trouble, and the exceptions may be treated of with but small detail.

Generally of small stature, the Muscaris do best in the front row of the border, in rockwork, or in grass. In any of these positions they will grow with but little preference for any particular soil, yet they seem to do best where it is of a light nature. In grass they are very pleasing, and a mass of the conical racemes of M. botryoides, with the green carpet given by the grass, looks exquisitely beautiful in April and early May. Most of the species increase rapidly by offsets or by seeds; so quickly, indeed, do some increase in certain gardens that they are looked upon as weeds —but weeds of beauty worth retaining.

One exception in many gardens to the ease of cultivation which applies to the greater number of the species is M. moschatum, which in such places generally flowers the first season, but not in succeeding years. It appears to require a hot position, and thorough ripening in summer. M. comosum is easily grown in light soil. *S. Arnott.*

(*To be continued.*)

SOUTH AFRICAN NOTES.

JOHANNESBURG.

(*Continued from page* 276.)

To many people the word Johannesburg conveys the idea of a huge ugly mining camp, set down in the middle of a vast treeless plain. The reality is quite different. Climb up the rocky hill above Doornfontein suburb and survey the great forest at your feet of deepest blue-green Eucalyptus and Pinus insignis, interspersed with miles of roads lined with handsome villas, each with a charming garden screened from the public gaze by neatly-trimmed hedges of Cupressus macrocarpa. Beyond are the towers and domes of the great town, and further off are the mines—huge heaps of white sand, the rock from which the gold has been extracted, tall, black iron smoke-stacks, and confused masses of galvanised iron buildings, from whence comes the never-ceasing roar of the stamping batteries, like breakers on an iron-bound coast.

Let us descend and enter one of the miniature Edens we have just caught a glimpse of. Passing the garden-gate, we are in a sheltered spot, where wind and dust can hardly penetrate; hence many plants thrive here which are failures in more exposed situations. Next the hedge is a broad border edged with Violets and gay with Cactus Dahlias, new Cannas, Tea Roses, and herbaceous Phloxes. In the background is a very healthy Cedrus Deodara, 20 feet high; a fine Juniperus bermudiana, and a Cupressus Lawsoniana in perfect health. A Pinus canariensis is noted, but this fine Conifer must have shelter to do well; near by is a large Laurustinus, and a Benthamia fragifera, laden with fruit. On the well-kept lawn in front of the house are a few Camellias, bristling with buds, and a hybrid Rhododendron, not very happy. The main walk is bordered with large plants of Azalea indica in tubs, which bloom well in the spring. On the cool, shaded south side of the house is a border filled with Hydrangeas, Fuchsias, and Pelargoniums, a Tree Fern, and a couple of Musa Ensete. The porch is festooned with Rose Reine Marie Henriette and Celine Forestier, and the verandah adorned with hanging baskets of blue Lobelia and very large rambling plants of Mandevilla suaveolens and Wistaria sinensis. On one side of the house rocky steps lead up to a well-kept croquet-lawn; a trellis-work on one side is a mass of Ivy-leaf Pelargonium in full bloom. A small orchard at the back is planted with Peaches, Apricots, and Apples, all of which bear well.

Such is one of the many well-kept gardens one sees; but in the middle of town are a great many ugly iron shanties, with not a scrap of garden-ground or anything green in view. It was to give pleasure to the unfortunate people living in such streets that my main object was to make this park as attractive as possible. True, I have had many failures, but then such is always the case. "The workman hath in his heart a purpose; he carrieth in mind the whole form which his work should have; there wanteth not in him skill and desire to bring his labour to the best effect; only the matter which he hath to work on is unframeable." Hooker's *Polity*, quoted in a note to Cary's *Dante*, Par. Canto I.

Owing to our very dry winter and spring, all plants which flower early in the year do not thrive very well here—such as Tulips, Hyacinths, Daffodils, Narcissus, Anemones, Ranunculus, Snowdrops, Cyclamen, and most Cape bulbs (they have a moist winter and spring at the Cape). Yet Englishmen delight to have some flowers in their gardens to remind them of their far-off homes, so Violets, Primroses, and Daisies, are general favourites, and often do very well; so also do Columbines and Pansies. Honesty I have tried to grow in vain! When the rains fairly set in from Midsummer to autumn, then Roses and Carnations give plenty of bloom, and make a very good show. Later on, annuals give satisfaction, together with Cannas, Tuberoses, Heliotrope, Pentstemons, Pampas Grass, Phloxes, Campanulas, and Chrysanthemums. The only flowers which can be relied on through the winter in the open are, Phlox Drummondi, Candytuft, Indian Pink, and Mignonette.

There is a considerable demand for cut flowers and Ferns of all classes; we have morning sales of cut flowers and pot plants in the market, and nearly half a dozen florists shops in town. During the summer, all demands are supplied from local nurseries, but in winter the Cape and Natal sends us Roses, Azaleas, Callas, Heaths, and Proteas, for as yet no one has gone in for forcing fruits, vegetables, or flowers under glass. The vegetable market is very well supplied all the year round; and the growers are mostly local Italians and Portuguese.

Of fruit and fruit-trees and tree planting, I have something still to say before bringing these rambling notes to a close. *R. W. Adlam, Joubert Park, Johannesburg, Transvaal.*

(*To be continued.*)

CULTURAL MEMORANDA.

THE PROPAGATION OF VIOLETS.

In reply to Mr. F. Strong's criticism in the *Gardeners' Chronicle*, p. 268, I may say that I wrote my note as a reminder to those who, from lack of the necessary convenience for earlier propagation, or from choice, use the strong side-growths which are found upon plants that have flowered in the winter in cold pits or frames. When the old plants have been properly attended to during the winter there is little difficulty in obtaining healthy runners with roots attached, and if such are planted and afforded the necessary attention they form good plants by the autumn. *C. R. Fielder.*

AGAPANTHUS UMBELLATUS.

This plant in warm localities is so far hardy as to withstand ordinary winters, if afforded some slight protection; but the practice is not to be recommended, high winds damaging the leaves, and making the plant very unsightly. The old plants should be occasionally divided, or repotted, using loamy soil as a basis, dried cow-manure, sand, and bone-meal, doing the potting with some degree of firmness. In the growing season they require much water and full sunshine.

Repotting should not be performed frequently, but the size of the specimens and their condition will afford the gardener indications in this matter When large plants become pot-bound, they derive benefit from being turned out and divided, and on no account should a richer soil be used than that indicated, or flowers will be but sparsely produced. Division should be carried out during March or April, and the plants placed in a forcing-house and be daily syringed, and after a few days hardened off, in readiness for placing out of doors.

The Agapanthus is semi-aquatic, and the best position for it is near a basin, a lake, or a stream, as much water is required; indeed, the plant may be deluged with it in its season of growth. During the winter, just sufficient water should be afforded as will prevent loss of the leaves; and the fuller the rest, the better the results in the matter of flowers. As soon as frost approaches, the plants should be taken indoors, where frost can be excluded. *H. T. M.*

ALOCASIAS.

The noble proportions and handsomely-marked foliage of these plants should commend them to all lovers of ornamental-leaved stove plants. Within recent years several magnificent varieties have been introduced to our gardens, and the genus has become thereby more popular than was the case at one time. All the species, with the exception of A. macrorhiza variegata, require stove treatment throughout the year. During the growing season, which extends from March to October, the plants require a temperature of 70°, with a rise to 85°, accompanied with abundance of humidity. A temperature of 65° in the winter will suffice, and the supply of water, both overhead and at the roots, at this period must be considerably reduced; still, these plants should not be dried off, but be kept gently growing.

The variety A. macrorhiza variegata, when well grown is admirably adapted for greenhouse or conservatory decoration, but it is now seldom met with, owing probably to the tendency of the leaf-colour to degenerate. A well-grown specimen of this variety should have its large light-green leaves heavily blotched with white. To succeed in maintaining this characteristic a too-liberal treatment should be avoided during the early stages of growth. The end of the month of February is a good time for repotting those specimens that require it, and young plants may be repotted at any time when it is necessary. A light open soil is essential, viz., one consisting of three-fifths fibrous peat broken up by hand, and two-fifths chopped sphagnum-moss, little bits of charcoal, and sharp silver-sand. The pots or deep pans in which the plants are grown should be clean and well drained, i.e., the potsherds should be well placed, for much water is needed by the plants. The pots or pans should be half filled with drainage, and over this a thick layer of the roughest of the compost should be placed. Having thus prepared a pot, carefully remove some of the exhausted soil, and place the plant on the new material, the crown of the root-stock coming somewhat higher than the rim of the pot; then fill in with soil, finishing it off in a convex form, or the thick fleshy stems will be apt to decay.

When the repotting is finished, place the plants in the warmest part of the stove, and supply them with tepid water, so as to wet every part. The after-treatment will consist of frequent syringings with clean rain-water, and damping the paths and stages twice or thrice daily. Clear soot-water afforded at alternate waterings does good. Thrips and red-spider sometimes appear on the plants, but these are easily eradicated by sponging the leaves with tepid-water in which a bit of soft-soap is dissolved; indeed, the plants are much benefited by an occasional sponging of the leaves. Propagation is effected by dividing the crowns at the repotting. A few of the most desirable species are A. metallica, A. intermedia, A. Jenningsii, A. Martin Cahuzac, A. Lowi, A. argyrea, A. zebrina, A. Sanderiana, A. Veitchi, A. Mortfontainensis. *H. T. M., Stoneleigh.*

CLEMATIS FLAMMULA.

This is, perhaps, one of the oldest Clematis in cultivation, and it is of use in covering trellis-work, the stumps of trees, &c.; the flowers are not showy, but they have a most delicious fragrance, and they are produced in huge masses. The plant is readily increased from cuttings taken off with a heel, and put in sandy soil under a hand-light. The roots of this variety are frequently used for grafting the more beautiful varieties upon. Many years ago, when I was employed in Fisher, Holmes & Sibray's nursery at Sheffield, the roots were simply slit down and the wedge-shaped scions inserted, tied, and then potted and plunged in a warm propagating-house; and, if my memory serves me aright, they never had any losses among the grafts. *H. Markham, Wrotham Park.*

THE ROSARY.

NEW ROSES, &c.

With regard to the new Roses which are being brought out, there is no diminution in their numbers, for I find that the foreign raisers announce forty-four Teas, fifteen hybrid Teas, and fifteen hybrid Perpetuals; it will be seen that this list varies considerably from what we used to have when the Hybrid Perpetuals comprised the great bulk. It does not at all follow that we shall have the opportunity of seeing many of these, indeed the experience of the last few years points to the contrary; but it is different in regard to our home-raised Roses, which the Waltham Cross, Cheshunt, and Newtownards firms have brought forward. There is no doubt we shall have the opportunity of seeing these, and some interest will be excited by the Gold Medal Roses which have been thus honoured by the National Rose Society.

There is another point which rosarians will do well to bear in mind this year; the National Rose Society will publish a new catalogue in the autumn, and its members are particulárly requested to notice the new varieties which will be exhibited, in order to see which are to be placed in the new catalogue, and also what Roses at present there are to be expurgated, for, while many varieties still retain their place in the favour of the Rose-grower, there are others which have to give place to newer ones of the same colour, which possess some superiority. There are, it is true, some varieties that are less likely to be excelled, such as General Jacqueminot, which has been in cultivation forty-six years, and others of our home-raised Roses, like Beauty of Waltham, thirty-seven years. What a multitude of flowers have come and gone during that long period! The National Rose Society will not hold a southern exhibition this year, and therefore there will not be such an opportunity of seeing garden Roses as there has been during the last two or three years, for the date of the Crystal Palace shuts out a good many of the early flowers in this section. Most of the seedling Roses are past, and if we are to see them anywhere it will most probably be at the Royal Horticultural Society's show, at the Drill Hall. No doubt there will be garden Roses at the Palace, and probably some of our northern amateurs may be able to show them in numbers. *Wild Rose.*

TREES AND SHRUBS.

SORBUS AUCUPARIA, L., S DULCIS LACINIATA, BEISSNER.

In the number of *Die Gartenwelt* for March 5 last, Mr. L. Beissner, one of the first German dendrologists, describes the above new variety of our common Mountain Ash, and a coloured plate very well illustrates the beauty of this novelty. The variety, it is said, is a natural sport of S. Aucuparia var. dulcis (moravica). In 1893, Mr. Ordenny, head gardener of the Prince of Lobkowitz, at Eisenberg, near Borix (Bohemia), discovered the mother plant in the highest regions of the (Bohemia) Orc mountains.

Mr. Beissner describes the plant as follows:—Branches and stalks of leaves bright dark blood-red; leaves thin and regularly laciniate, like fronds of Ferns, of a deep lustrous green in summer, golden-yellow in autumn; lowest leaves of totally different form, curled; the ripe fruits are tile-coloured, edible like those of S. Ancuparia moravica, in taste resembling those of our common red Bilberry (Vaccinium vitis) when preserved.

This new sport of S. Aucuparia is as hardy as the typical plant, and if planted where it has a dark background, will produce a very beautiful effect. *C. K. S.*

THE HERBACEOUS BORDER.

THE BEDDING VIOLA OF THE FUTURE.

There is still need for a race of early flowering Violas. Of the many hundreds of seedlings which are raised annually, and of the numerous varieties sent out every year, nothing that I have seen can lay claim to special precocity. Beds of Hyacinths and Tulips especially, have a dreary appearance until the beginning of April, when the plants begin to develop their flower-stems. But if we had a race of Violas that would come into bloom with the Crocus and the Primrose, they would be of great value, especially in our London parks. Large patches of grass are in full glow of vernal beauty; Crocus, Scilla, Chionodoxa, Narcissus, Tulip, &c., vie with each other in cheerful floral service. But the flower beds are yet dreary, except where there is a margin of early spring flowering bulbs. Even Myosotis dissitiflora, except in highly favourable spots, is not yet in flower.

That the Viola can be "educated" into precocity, there can be no doubt, just as the late Mr. William Ingram of Belvoir "educated," as he happily termed it, his Wallflowers, Anemones, and other spring flowers into the habit of early blooming.

The mistake made by some raisers of new varieties is that they think its highest service is on the exhibition table. Its real service is in the flower garden, and especially in early spring. That is a matter, there is reason to fear, too much overlooked by those who raise seedlings. Habit of growth has been made subordinate to the shape and size of the blossoms. The Viola of the future should be early flowering, because an early variety can also be employed in the summer display; but no resource can make a Viola that flowers naturally in May to bloom in March. An earlier bloom could be obtained in the open by taking cuttings in July, placing them in a cold frame, which would bring the young plants into bloom earlier than if wintered entirely in the open, and planting out as soon as in flower.

It is a ridiculous designation to term the present day Violas, as some do, "tufted Pansies." Too many of the newer varieties are by no means of close tufted growth; they are, instead, lanky, and can be employed with effect in the flower garden in association with other plants which furnish a kind of support. What is wanted is a really tufted growth, dwarf and compact, with the flowers produced in symmetrical masses well above the leaves. Varieties which throw their flowers at irregular heights are not effective in the flower-garden. Persistency in bloom is another point, the property of lasting in flower for a considerable time; so long as Violas produce seeds freely, so long will there be loss of bloom. Freedom and continuity of bloom, and sterility in seed-bearing, should characterise the Violas of the future. Then endurance is required, meaning thereby the property of enduring hot sunshine and drying weather. The heat and drought of last summer brought out the peculiar weakness of many varieties which flower through one half of May and June, and then go down under the heat of July. Further, the newer Violas should be as far as possible mildew-proof. Some take the mildew speedily, and soon terminate their floral services; those that endure are but few. The rayless and miniature varieties appear to be constitutionally weak, and unable to stand our southern hot summers. It is possible that the efforts made to withdraw from the flowers anything in the way of coloured ray-lines round the eye has led to breeding to a great extent in-and-in, with resultant weakness of constitution.

There is ample room for an improved race of Violas. Early flowering, persistent, and constitutionally vigorous, a race is wanted which, if planted out in October, will be in bloom at the end of March; and with the assistance of an occasional top-dressing, continue in bloom till September. There must be so much of constitutional vigour as to resist such attacks as mildew; and so much of sterility as will conduce to a continuous, well-sustained bloom. He who can produce such a race will be a benefactor to floriculture. *Florist.*

VARIORUM.

The Broccoli Traffic in Cornwall.—In the early part of the season the Broccoli crops looked anything but promising. But things took a turn for the better, and the toothsome vegetable not merely came on fast, but in very fine condition. On one day in the second week in April, there were dispatched from the stations of Penzance, Marazion, St. Erth, and St. Ives, 223 truck loads. It was the record day of the season, and the largest quantity of Broccoli ever sent in one day from West Cornwall. Taking the quantity loaded and dispatched on that day to average two and a half tons to the truck, it gives a total of 557½ tons. The crates usually average thirteen to the ton, so that the total number of crates would be 7,427; and carrying the calculation a little further, and estimating the crates to contain five dozen heads of Broccoli each, which is a fair average, we have a total of 434,820 Broccoli. *The West Briton.*

FOREIGN CORRESPONDENCE.

LANDSCAPE GARDENING IN CALIFORNIA.

Liberality is a prominent trait of the American, as has recently been illustrated in California. The International competition for the best scheme for a State University, in Berkeley, is hardly over, and is yet fresh in everybody's memory. Mrs. Phœbe Hearst supplied the means which made such an undertaking possible; and the eleven landscape architects, fortunate enough to win prizes in the preliminary competition, visited us to study the grounds, and compose new designs for the final competition to be held in September; this year not in Antwerp as hitherto, but in San Francisco, our metropolis. After the adoption of the final plan, a prize of 8000 dols. will be awarded to the successful designer. The grounds comprise some 250 acres, and are to be widened to about 300, to include the grand piles of rockery, will be designed and laid out to correspond with the noble work of structural architecture. The slope, at the foot of which these buildings will be erected, is grand in shape and outline. It faces south-west, lies opposite the Golden Gate, the entrance to the spacious Bay of San Francisco, and rises from 200 to 550 feet in elevation, having Mount Grizzly at its back, and surmounting it. Small groves of old Oaks (Quercus agrifolia) grow along the banks of the creeks across the site, and clumps of Eucalyptus that can be turned to account when remodelling the landscape.

Mrs. Hearst's generosity goes even further than this. The idea has been conceived that the streets of San Francisco should be improved, and in response to the invitation of the above-named lady, the architects here examined the city also, and are to lay before us suggestions and plans for the improvement of a site as grand as that upon which Rome was built, and as charming as is the country around Naples.

Some of the leading ladies of the city have established the "California Club," and their self-imposed duty is to add everything possible to the beautifying and improvement of the surroundings of the town. Playgrounds for children are to be opened, beginning with the providing of gymnastic and other apparatus on vacant spaces, the laying-out of race-tracks for the boys of the town, and the arrangement of sand-heaps for the youngsters to play in. Most of our public squares create an impression that the gardeners who laid them out learned their profession from practising the making of sand-heaps and mud-pies. Slowly but surely we are awakening from such conditions, and the grand charter, formed from ideas incorporated from those of the best municipal governments here and abroad, and adopted now for our metropolis, will come into force next January. The requirements of the Civil Service will rule in all departments, and gardening in our squares will be free from disturbing political "pulls." It is the ladies of the "California Club" also who have taken up the idea of laying-out our squares effectively. It is proposed to furnish the most central one entirely with shrubs and trees from our own forests. And should we not be proud of our flora, and feel ashamed of having neglected to profit by its charms for so long? Our nurserymen have given up growing Californian shrubs, because nothing but Palms and Bananas would suit the gardeners and their clients. It would be well if, for some years to come, some pest, even worse than the San José scale, would devour every stiff-leaved, varnished-looking Palm grown by us. Monterey Cypress, Austrian Pine, and Eucalyptus trees, form the mass of the plantations in our parks, and only gradually are these being replaced by plants that should have been grown under their shade for ten or fifteen years past.

And as we try to improve on a small scale in our towns, we are also realising the need of greater care of our forests and preserves. One tract after another has been set aside from entry by settlers, and we are bound to secure the yet remaining plantations of timber along the main water-sheds. A new society has been formed for this very purpose, and it has met with the hearty co-operation of every club working on similar or affiliated lines. Future visitors to our State will find signs of a new era, and will give us credit for undertaking an important enterprise before it is too late to perfect it. *Geo. Hansen.*

RUXLEY LODGE.

Lord Foley is making a considerable addition to the glass structures in the gardens at Ruxley Lodge, his residence near Esher. During the past two or three years he has built a moderate-sized Cherry or orchard-house, with two divisions, and a case or two to enclose some fine specimen Fig-trees, that used to fruit well upon a protected wall, but not with equal certainty to those inside. An old Rose-house has been removed, and a fine and lofty structure with a lantern-roof has just been completed upon the same site. But these are quite minor additions and alterations compared with the large conservatory now in course of erection.

The residence will be extended on the west side by an elevated passage, which will connect with a tower, now being built, at a distance of 120 feet from the house. This tower will be upwards of 80 feet high, and will command extensive views of the Surrey and Sussex landscapes. The wall from the house to the tower will be something like 20 feet high, and upon reaching the tower will make an elbow for a further distance of 55 feet. The conservatory will follow this wall, and the length of the structure will therefore be about 174 feet, 119 feet of which will have an aspect nearly due south, and 55 feet will face the east. Its height is to be about 30 feet, the back of the roof resting on the above-mentioned wall. The width of the conservatory will be 26 feet throughout. This house will be very much the largest in these gardens, and will afford plenty of space for standard Orange-trees, Palms, Tree-Ferns, Myrtles, Eugenias, Araucarias, Camellias, Azaleas, &c., many of which will doubtless be planted in borders, where growth is more free than in the case of cultivation in pots or tubs.

Lord Foley enlarged the dwelling-house a couple of years or so back, by building a billiard-room and library; and previous to this considerable building had been done to render the accommodation of the stables more complete.

It has been a matter of much inconvenience at Ruxley that there exists a public footpath through the park, which passes the south front of the dwelling at such a distance that pedestrians were in full view from the flower-garden and the sitting-rooms. Last autumn efforts were made to lessen the inconvenience by throwing the soil into two terraces, which now moderately well screen the footway, and when the Yew-trees that have been planted upon these banks have grown up, the screen will be an effective one. Several acres of land have been added to the pleasure-grounds, and new walks are in course of formation, that will approach a mile in length.

The Fruit Prospects

at Ruxley are at present very satisfactory. The Vines, without exception, are showing good crops, and the earliest Grapes are now colouring. The trees in the earliest Peach-house, like many in the suburbs of London, have not more than a thin crop, but those in the succession-houses and late ones will need to be thinned severely. Figs, always a specialty at Ruxley, have been in use for dessert since the end of February; and Melons will soon be ripe. As in numerous other gardens, the variety Royal Sovereign is now the favourite Strawberry for forcing, and some plants now fruiting in pots are carrying an unusually heavy crop of fruits of first-class quality.

Out-of-door fruits of a tender nature have been greatly affected by the weather, but there will probably be a thin crop of Apricots upon walls; and of Peaches also upon walls, there will be it is hoped, as good a crop as usual. The out-of-door Peach-crop rarely fails at Ruxley. Strawberry-plants give abundant promise. Apples and Pears will hardly be safe until the end of the present month, but the wood was thoroughly ripened last autumn, and there is an abundance of blossom, now at its best.

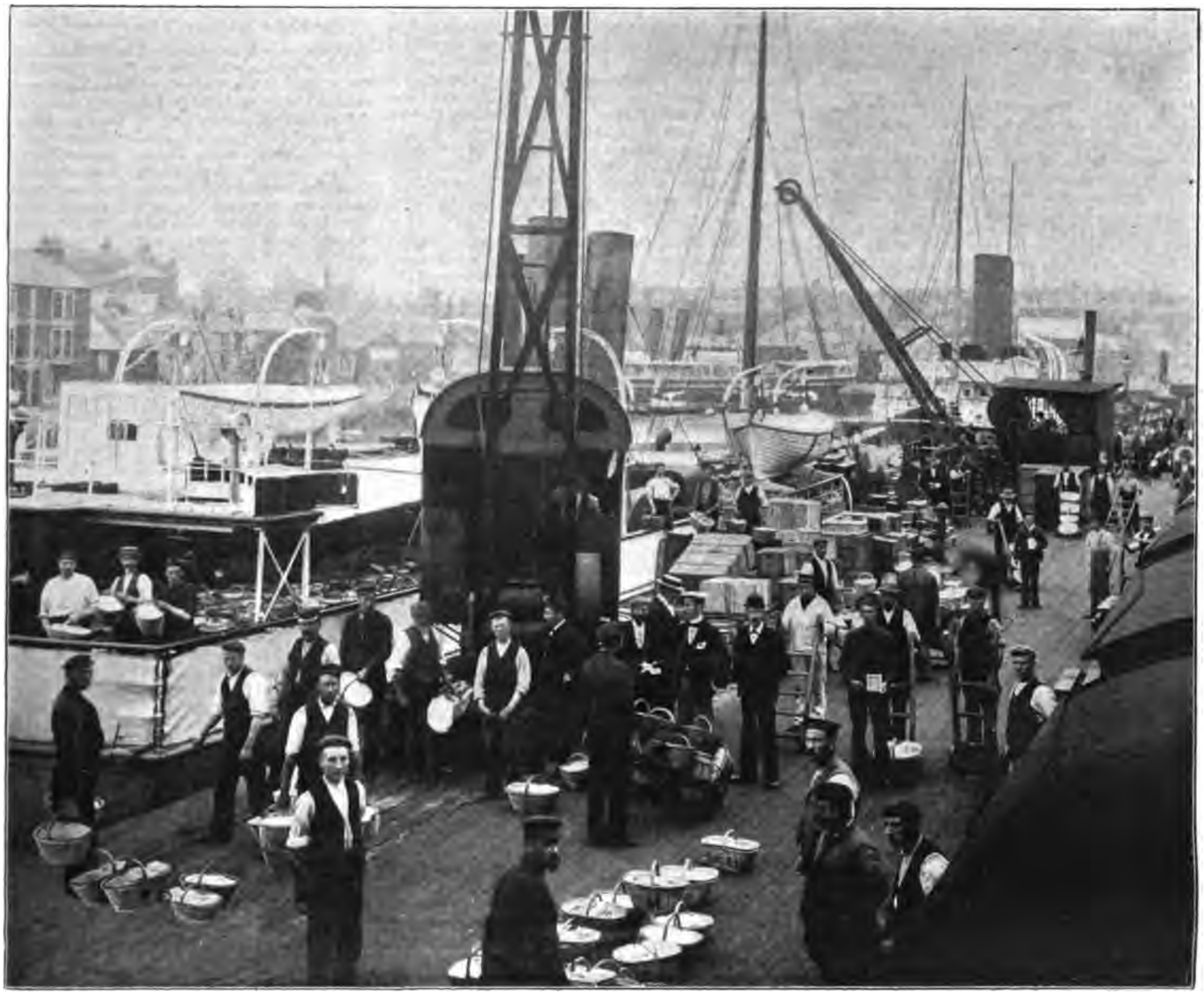

FIG. 107.—MARKET GARDENING IN THE CHANNEL ISLANDS: ARRIVAL OF THE GREAT WESTERN S.S. "LYNX" AT WEYMOUTH.

Lord Foley takes a very close interest in the management of the gardens, but his veteran gardener, Mr. J. W. Miller, now in his seventy-eighth year, nevertheless finds abundant room for his extraordinary activity of mind and body.

MARKET GARDENING IN THE CHANNEL ISLANDS.

IN supplement to the series of articles from our "Special Correspondent," describing the very extensive horticultural trade now existing in the Islands of Jersey and Guernsey, we now reproduce a photograph of one of the steamers by which the produce is conveyed to the mainland for distribution in the markets. For this purpose, and for the conveyance of passengers, the steamships of the London & South-Western Railway Company from Southampton, and those of the Great Western Railway Company from Weymouth are continually plying across the Channel. The accompanying illustration from a photograph (fig. 107) represents the ss. *Lynx*, one of the Great Western Railway Company's boats, as she appeared immediately after her arrival at Weymouth one day last autumn. The vessel bore very large quantities of Grapes, Tomatos, and other produce in cross-handled baskets, all securely packed and labelled. No sooner had she been secured to the wharf, than a number of men commenced to unload the horticultural cargo, passing the baskets from one to the other, and depositing them in a position, where all were sorted according to the marks upon them.

Following this, they were immediately placed upon some trucks waiting on a siding close at hand, for despatch to the various markets. The cargo on this particular day was addressed to about sixty different markets, chiefly those of the Midland and Northern shires.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By W. STRUGNELL, Gardener to the Right Hon. W. H. LONG, Rood Ashton, Trowbridge.

The Second Early Vinery.—The thinning of the bunches must be done betimes, as this operation can be carried out more easily when the berries are small, and the danger of piercing them with the point of the scissors is less. They grow very freely in size after the thinning. Never over-crop a Vine, or a lessening of the vigour of the plant, bringing in its train insect troubles, small berries, and indifferent colour, will surely result. This is a point difficult to give advice about, so much depending on particular circumstances as to what constitutes a light, medium, or full crop. As soon as the berries are thinned a plentiful application of water should be made to the border, and if a suitable liquid manure is not obtainable, artificial manures may be employed with about equal benefit. [A manure for the Vine should contain nitrate of potash, 1 cwt.; sulphate of lime, 1 cwt.; and dissolved bones, 2 cwt., and this manure may be applied at the rate of 2 lb. per superficial square yard, at intervals of four weeks (*vide* Barron on *Vines and Vine-culture*). Ed.] The damping of the vinery-floor and the path in the evening with liquid manure, stimulates growth, and aids in keeping red-spider in check. The lateral shoots must be stopped once in seven days, and plenty of space afforded for the primary leaves to expand without crowding, as well as sufficient space between them and the glass to prevent any scalding.

Early Melons.—The earliest crop of these fruits being in a more or less forward state, and the top and bottom heat of the right degree, it will be an easy matter to have ripe fruits in the present month. In order to ensure high flavour, the common practice of drying off the plants by withholding water from the soil should be avoided. The chief object the gardener has in view in drying off his Melon-plants is the prevention of cracking. However, if the plants are regularly afforded water, the degree of moisture in the soil is not allowed to fluctuate in the fruits less prone to splitting. For example, if a heavy application of water be applied to a dry soil, and the Melons are almost or quite fully grown, some or all of them will split. When in the last stages of ripening, each fruit should be examined daily, and upon the slightest sign of separation of the stem from the fruit, that fruit should be cut together with the stalk and placed in a cool room, or if required for immediate consumption, on a shelf in a warm house is the better place. Melons vary much in their ripening, some varieties developing flavour, and the rind softening whilst still on the plant; others require to be for several days in a cool room before perfect condition is attained. Careful ventilating of the Melon-house is of much importance, for if the air be moisture-laden, a similar effect is produced as that which follows an application of water to the roots.

General Treatment.—More seeds of Melons in variety may now be sown, one or two seeds in a pot. The fruits from this sowing will ripen during the months of July and August. The best kind of soil to employ in the pots is turfy-loam, in which some mortar-rubble, finely sifted, is mixed. Melons from this sowing may be grown in unheated pits and frames, provided a bottom-heat of about 80° is afforded by a bed of tree-leaves and stable-litter. These plants may be grown in any sufficiently warm house, close to the glass, until such time as they are strong enough for planting in the pits, &c. The soil of the beds should always be allowed to get warm throughout before planting is done. Earlier-sown plants should not be allowed to get pot-bound before transferring them either to larger pots or to the beds. The stopping and regulating of the growth of Melons need almost daily attention in heated pits, and when the flowers show, afford air as freely as may be safe, having regard to the nature of the weather, fertilising freshly opened flowers about mid-day, and when they are perfectly dry. Syringing during this stage should not be practised. When it is seen that three or four fruits per plant are increasing in size rapidly, all superfluous growth should be suppressed. When the roots are observed to have reached the surface of the hillocks on which the plants stand, apply a thin layer of warmed loam, repeating this dressing as occasion may require, till the bed is brought up to one level surface, but always keeping that part of it where the stems are, higher than the rest of the bed. In the case of loam of poor quality having to be employed, liquid-manure may occasionally be used, after the fruit has begun to swell; or even manure in small quantity mixed with the soil previous to planting. When an ordinary hotbed of manure, &c., supplies the warmth, it is well to cover the bed with boards or slates, so as to keep the roots out of these materials. The number of plants in a pit or frame will depend on the size of the lights, but the largest seldom need more than two per hillock, and for small lights, i.e., 5 by 4 feet, one is sufficient. In all cases the seedlings must have the point pinched out after the first pair of true leaves have formed, thus obtaining three to four shoots, each of which may be allowed to carry one fruit.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Cattleya Warscewiczii, commonly known as C. gigas, is now making rapid growth, but until the bulbs have almost attained their full length, few roots are made. A very prolonged rest is required by the various forms of this species, and even when any plant commences to grow anew, only sufficient water need be afforded to prevent the pseudo-bulbs shrivelling. When the sheaths appear rather more may be applied, carefully guarding against excess, especially in conjunction with a moist atmosphere. Do not afford a top-dressing until the sheaths have appeared. C. gigas should be repotted only when new roots appear at the base, even should it be during the flowering season. That the plants appreciate light is proved by the fact that those suspended nearest to the roof-glass produce the greatest number of flowers. Suspended plants become dry soon after watering, and they are generally in conditions more resembling those of their natural habitat.

On Exhibiting Orchids.—At this season, a large number of choice Orchids are usually taken from their quarters and conveyed by road or rail to exhibitions, which more often than not are held under canvas. That the plants so exhibited suffer, goes without saying, considering the difference in the conditions obtaining in their home quarters, and those inseparable from the exhibition-tent. One would hardly suppose that Cattleyas and Lælias suffer to a much greater extent than other Orchids from this cause, but the suffering is increased if the plants have been afforded water before leaving the garden. This fact being understood, plants selected for exhibition should have no water afforded for a day or two previously, unless they are in absolute need of it, and then a slight sprinkling of the surface will suffice. The latter method should also be adopted during an exhibition that lasts two or three days, and also on the plants returning home, which kind of treatment, if accompanied by an extra amount of shading for a few days, will enable the plants to recover from their journey. Another source of harm consists in thrusting stakes into the mass of roots, sphagnum-moss, &c, often to the injury of many of the roots. With small plants this may be avoided by enveloping the pot in wood-wool, and thrusting the stakes into that. Large plants usually have stakes fixed in the pots at the time of repotting, and these can often be made to support a plant by splicing other sticks to them when packing them; but where there is none, those required should be fixed very carefully.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Cleaning the Land.—In sunny weather let the hoe be kept steadily at work in order to aërate the soil and kill the weeds, this work being chiefly carried out with the Dutch-hoe, let it be used pretty constantly amongst growing crops. The Onion crop should be taken in hand at an early date, and if the plants are doing well, thin out some of the plants when they are 2 inches high, but the final thinning may come later on. Some gardeners sow new Onion seed somewhat thinly, and do not thin the plants. The produce is varied in size, and therefore economical in use. A dressing of soot will be found useful for Onions where the maggot is feared. Whatever the crop, thinning should not be deferred till crowding takes place.

Mushrooms.—Beds may still be made up at intervals in size and number to suit the demand, and now that the weather is warmer, some beds may be made in a cool shed, or in a sheltered spot in the open; the principal point to be observed being good stable-manure from corn-fed horses, which should be sweetened by repeated turning. It needs not to consist entirely of the dung of horses, but a little short straw as well may be used. Let the beds be made bit by bit, packing the materials by treading and beating them, as the work proceeds. Spawning should not take place till the warmth of a bed has sunk to 98°, and after that is done the beds may be cased over without further delay; all beds, whether in the open or in the Mushroom-house, should be repeatedly examined, and if found dry, they should be afforded warm water, first removing the covering, if any. The temperature of a Mushroom-house should not be more than 60° or less than 58°.

Seed Beds.—Let a careful examination be made of all seed-beds, making good all mishaps without delay. The weather so far has been unfavourable to the germination of seeds and the growth of seedlings, so that should mild showery weather set in, plants raised from seed sown at this date will in some instances catch up those sown earlier. The young Brussel Sprouts, Cauliflowers, Savoys, &c., raised from seed sown in March having made little progress, should be afforded water, following this with a slight dusting of fresh soot and lime.

Turnips.—A considerable breadth of land may now be sown with two or three varieties; those who prefer the yellow-fleshed Turnips sowing Golden Ball or Orange Lily, two good-flavoured varieties. Excellent white Turnips for present sowings are Snowball, Early Milan, and White Stone. Keep a sharp outlook for the Turnip-flea; dress the rows frequently with wood-ashes, soot, and lime, and should the pest become very troublesome apply water frequently, and then sprinkle wood-ashes over the plants. The chief aim should be the encouragement of growth in the plants, as it is only in the seed-leaf stage that the flea is so injurious.

Cucumbers for Pickling.—Seed should be sown three in a 60-pot, and the pots placed in a mild hot-bed or a forcing-pit, putting out the plants on ridges under hand-lights when they are large enough, and have been hardened off a little. A warmth of 55° to 65° is ample, and such will keep the plants sturdy and healthy till the time arrives to set them out.

FORESTRY.

By A. C. Forbes.

Shedding of Scots Firs Needles.—The danger of leaving brushwood to rot in a plantation, is, in many cases, more imaginary than real, for it is very seldom that insect or fungoid-attack on living trees is occasioned by insects or fungi, which rather infest dead twigs and small branches. The chief danger occurs during the short period between the cutting of the wood and that stage of decay at which the food material of these parasites has lost its sustaining properties, for the reproductive powers of these pests is so great, that want of food or a suitable medium for growth, seems their only limit. Large quantities of partially dead shoots, in the presence of a parasitic fungus, may thus become a source of danger to living trees above and around it, for the air at times, being full of its spores, any weak place in leaf or shoot is at once seized upon, and becomes a centre of infection to neighbouring parts. An instance of fungus-attack recently came under my notice, which illustrated this point very clearly. In September, 1897, the rides in a young plantation of mixed Conifers (in which Scots Fir predominated), were widened for shooting purposes, and the cut trees dragged back under the cover of the trees which stood behind them. This was done partly to save trouble of burning or removing, and partly to provide ground-cover for rabbits, and no further notice was taken of them. In February of this year the Scotch Fir on the margin of the rides began to put on a scorched appearance, as if a fire had been lit too near them, and had singed the needles. Inspection proved, however, that this was due to the attack of a fungus, which is too well known amongst young Scots Fir plantations in Northern Europe, but which does not as a rule give much trouble in this country, although the fungus is found more or less on Scots Fir everywhere. Known to mycologists as Hysterium pinaster, it attacks the needles of the Scots Fir generally, although its effect is more easily seen on plants from one to ten years of age. The first external symptom of the disease is a discoloration of the needles, brown and purple patches taking the place of the green of healthy leaves. Examined under the microscope at this stage, yellowish-brown masses of mycelium will be found in the fibro-vascular bundle of the needle, and in the spaces between the resin-ducts. In a week or two the inner surface of the needle begins to shrink, leaving the sharp edges projecting, these latter ultimately curling round as the shrivelling process goes on. In April and May the affected needles usually fall off, leaving the shoot almost bare until the new shoot is developed in June. In the following autumn or spring, according to the weather, numerous black specks appear on the dead needles, the spermogonia and apothecia of the fungus, and by which its spores are produced. According to R. Hartig, a spell of wet weather is necessary for the bursting of the apothecia and the escape of the spores from the asci, and warm wet winters are very favourable to the spread of the disease. Occasionally the fructifications appear before the fall of the needle, and this occurred in the present attack. This disease is so widely spread, and so disastrous to seed beds of Scots Fir in many of the German forests, that great difficulty is frequently experienced in regenerating cleared ground, and the term "schütte" popularly given to it on account of its effect on the needles, indicates the reputation it has so long held as a parasitic pest. Under the circumstances usually prevalent in the raising of plantations in this country, the spread of the disease from one wood to the other is less likely to occur, than in a compact area of Scots Fir forest where young and old plantations adjoin. After the trees have obtained a height of a few feet it does not appear to give much trouble so far as their growth is concerned, but the case quoted above proves that favourable circumstances for its development may render it troublesome to older plantations. The one in question is ten years of age, and growing on good loamy soil, too good, in fact, for Scots Fir. The whole of the widened rides have their marginal trees affected in the same way, independent of exposure or aspect, although it is quite possible that sudden exposure to light and sun, after growing in partial shade, may have injured the affected needles to some extent, and predisposed them to attack. A few yards further into the cover the trees are not similarly affected, although the fungus occurs on the needles of suppressed and weakly branches. At the present time (end of April) many trees are quite bare of needles, even up to the leading shoot, and many others are totally brown, so that at least six weeks must elapse before the trees resume their normal appearance. Although appearances point to the conclusion that the dead and decaying trees left in the plantation after cutting, had a good deal to do with the attack, it is possible that it is merely a coincidence, and that spores from the suppressed branches might have effected the same result had the cut trees been made away with at the time. It is evident, however, that it is unsafe to neglect the simplest precautions in the presence of these minute foes of trees or plants, and that cleanliness in a plantation may be as necessary as in other matters of daily life.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Seedling Carnations.—If seeds were sown as directed in a previous calendar, the young plants will now require to be put singly into small pots, and subsequently removed to a cool pit or frame. Keep the atmosphere somewhat close for a few days, and shade the plants during bright sunshine until the roots have again become active, when quite opposite conditions will need to be gradually introduced.

Celosias and Cockscombs are best kept in small pots until they show signs of flowering, when they may be potted into 5-inch pots. For this purpose use a rich open compost, such as three parts loam and one part each of spent hot-bed manure and leaf-soil, adding plenty of sand. The plants should be kept near to the roof-glass in a night temperature of about 60°, and of 70° by day. Syringe freely and often among the pots as a preventive of attacks from red-spider. When the flowers are well developed, the plants may be gradually hardened, and removed to the conservatory or greenhouse.

Acalypha hispida (Sanderi).—Keep a sharp outlook for aphis in the flower racemes. They are difficult of detection until the portion of the raceme attacked has become discoloured. It would be well to occasionally place these Acalyphas in a house about to be fumigated. The lower leaves of the plants are liable to be attacked by red-spider, but, as the surface of the leaves is smooth, sponging with soft-soap and water is an effective means by which to clean them.

Show Pelargoniums.—In giving specimen plants the final tying, the shoots should be so disposed that the flower-trusses will be equally distributed over the plant. Examine the plants for aphis, and if its presence be detected, fumigate them with Richards's XL-All Insecticide. The flowering will be greatly assisted by affording the plants an occasional application of weak manure-water.

Miscellaneous.—Prick out seedlings of Primula obconica, P. floribunda, P. verticillata, &c., directly they are large enough to be handled, and keep them well shaded for a time. Seedlings of Tuberous Begonias and Gloxinias may be potted in small pots. Sow seeds of Primula chinensis and Cinerarias for early winter flowering.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore Maidenhead.

Sweet Cherries.—The growth of these trees, owing to north-east winds and general low temperature, has been considerably checked, and as a result the black aphis has already begun to infest the foliage. This pest should be forthwith destroyed with Quassia or Tobacco-water, or by fumigation under cloths, the remedies being repeatedly applied so long as any insects are observed. The curled-up leaves form a hiding-place for caterpillars, which should be killed by squeezing the leaves between the finger and thumb, and grubs should be similarly treated. Owing to the backwardness of the trees, syringing with strong mixtures has hitherto been unadvisable, but now that the fruit is set and swelling, the means above-named will not be injurious. In mild weather the trees may also be syringed with clear water, which will help in the same way. The frosts have considerably thinned the crops of sweet Cherries, and a full one will be an exception in this district.

Morello Cherry-trees are as yet scarcely in bloom, and they give promise of an abundance of blossom, which at this date may reasonably be expected to be safe from frost, although the weather still remains cold and unseasonable. Where the soil of the borders of Morello Cherry-trees is heavy and retentive, a few inches of the upper crust may be removed, substituting soil for it with which a good proportion of mortar rubbish and small brick-rubble has been mixed. In lack of a suitable sort of soil, a good dressing of mortar rubbish alone may be pointed into the surface.

General Remarks.—Peaches, Apricots, Plums, and Cherries may now have their protective coverings removed, as the foliage now acts as a protection against any frost that we are likely to have, in the south at the least. If the copings are portable they may remain over the trees for another week or two as a slight extra protection. Netting or other materials used should be thoroughly dried and then be put into store. Where grafting has been carried on, the clay coverings of the grafts will, after the dry weather of the past week or two, require to be smeared over with wet hands, or thin slip of clay-and-water, in order to fill up the cracks. It is imperative that moisture and air be excluded as much as possible from the bark of both scion and stock, otherwise no union will result. Strawberry-plants grown solely for furnishing runners should have the flower-trusses removed.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Herbaceous Borders.—The Dutch-hoe should be used frequently. Thin out all weak growths from plants of Aconitum, Delphinium, Aster (perennial), Phlox, &c. Any that have made growths 1 foot to 18 inches high should be staked, and if the clumps be large, drive three stakes 1 inch in thickness at angles around the plant. These should be of sufficient height. Divide the shoots equally, and loop them loosely together with tarred-string in such a way that the plant can grow freely. Thin out annuals which have been sown in the flower borders, allowing each plant sufficient space for its natural development.

Pentstemons.—Autumn-struck cuttings should be planted out in well-drained soil; and if this be poor, some leaf-mould and sand may be added. Pinch the points of the shoots of any that have a leggy habit. Plants raised from seed are more robust, and require more space.

Stocks.—The dwarf German, large-flowered, or the Giant Ten-Week that have been raised from seeds, may now be planted in good rich soil, either in groups or beds, selecting for them a cool and moist position. The smallest plants should be selected as they usually produce the best double flowers. Those of strong growth, with forked roots, are invariably single-flowered varieties. Stocks should never be allowed to become dry at the roots. Afford them liquid-manure when the spikes are formed and it will increase the size and colour of the flowers.

Tuberous-rooted Begonias.—Many of the seedlings that have been pricked out in boxes or pans will now be sufficiently large to be potted off into 4-inch pots. Well drain these pots, and add a little more loam to the compost than was recommended for them when being transferred from the seed-bed Afford the plants but little water until the root have again become active, but a slight damping between the pots will be helpful. Admit as much light as possible, but shade from the sun, and prepare the plants for transference to the beds by the middle of June.

Megaseas, also known as Giant Saxifrages, are effective the whole year through. They are easy of cultivation in good stiff loam, and if clumps be parted and planted at this season, they will start quickly into growth. The bright green leaves in the summer, and the lovely tints these become in the autumn, alone make them worthy of prominent positions in the dressed grounds. M. crassifolia and M. cordifolia (purpurea are beautiful early-flowering sorts that require some protection from frost. M. Milesii is very pretty, but being delicate requires wintering in a cold frame. What are known as the Newry hybrids are very robust, and in these gardens flower much later than others. The varieties Brilliant, Distinction, corrugata, Sturdy, and Progress, planted in bold masses on the margin of the lake here, and in conspicuous places in the pleasure-grounds, attract much attention from visitors. Saxifraga peltata, both in exposed and shady parts of the garden, grows freely and produces large loose clusters of pale pink flowers and huge cup-shaped leaves. S. ciliata, another fine-leaved plant, is deciduous in winter, and requires a sheltered, partially-shaded nook, and well-drained soil.

THE APIARY.

By Expert.

Swarming and its Prevention.—Amid the many devices, good and bad, introduced of late years, in the shape of "non-swarming hives," "swarm-preventers," &c., the fullest credit must be given to those who have given time and thought in furtherance of the object of ensuring perfect control over the issue of undesirable swarms. Nor can there be any doubt that, with this end in view, several very good hives have been devised, and are now on the market. The principle involved, however, is nothing more than the well-known axiom of "giving timely room and ventilation;" and we quite believe that equally good results will be secured by those who do not care to invest in a non-swarming hive or appliance, by taking an equal amount of trouble (in the application of the timely room and ventilation principle) as is required in the working of a "non-swarmer." On the other hand, we consider the newest type of non-swarming hive to be advantageous, apart from the idea of swarm-preventing, in that the feature of getting bees to work down into a box of shallow frames placed below the brood-nest is an excellent one. It saves the time so frequently wasted by bees hanging idly outside the hive for days together for sheer want of room inside. Moreover, the subsequent removal of combs and bees—when the latter have got fairly to work—to a position above the brood-nest, does away with the frequent reluctance of bees to pass through the excluder, and enter surplus chambers.

Renewing Combs in Brood-chamber.—We strongly advise the removal, every spring, of a couple of outside combs—choosing the oldest or most faulty ones, of course—substituting frames fitted with full sheets of foundation. Then after the bees have fairly started to build out the foundation, the frame may be placed right in the centre of the brood-nest without the slightest fear of chilled brood. By this means we get two new combs built every season; and by gradually renewing the whole, not only keep the brood-combs in good condition, but avoid faulty ones, and thus conduce to the comfort of handling workable frames when manipulating our hives.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	MAY 13	Royal Botanic Society, Meeting.
TUESDAY,	MAY 16	Royal Horticultural Society's Committees. National Rose Society's Committee Meeting
WEDNESDAY,	MAY 17	Imperial Russian Gardeners' Association: International Exhibition at St. Petersburg (10 days).
FRIDAY,	MAY 19	Manchester Royal Botanical Society's Whitsuntide Exhibition, continuing until May 25. Royal Botanic Society, Lecture.

SALES.

TUESDAY,	MAY 16	Established Orchids, at Protheroe & Morris' Rooms. The Collection of Duplicate Orchids formed by F. Hardy, Esq., at Tyntesfield, Ashton-on-Mersey, by Protheroe & Morris (2 days).
WEDNESDAY,	MAY 17	Lilies, Gladioli, Carnations, Greenhouse Plants, Palm Seeds, &c., at Protheroe & Morris' Rooms. Unreserved Sale of Greenhouse and Bedding Plants, by order of Mr. Geo. Allin, at the Floral Hall, Highbury Place, N., by Mr. Herbert Wm. Rendell.
FRIDAY,	MAY 19	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 30 to May 6, 1899. Height above sea-level 24 feet.

1899.	Direction of Wind.	Temperature of the Air.				Rainfall.	Temperature of the Soil at 9 A.M.			Lowest Temperature on Grass.
		At 9 A.M.		Day.	Night.					
April 30 to May 6.		Dry Bulb.	Wet Bulb.	Highest.	Lowest.		At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 30	N.N.E.	46·4	40·8	51·4	41·9	...	52·2	50·2	48·1	40·8
MON. 1	S.S.W.	49·9	44·9	55·5	37·1	...	51·3	50·4	48·3	27·6
TUES. 2	N.W.	55·8	51·2	60·8	46·0	...	51·5	50·4	48·5	41·2
WED. 3	N.E.	46·6	44·8	54·1	45·0	...	52·2	50·6	48·7	44·3
THU. 4	N.E.	47·6	41·7	51·9	32·3	...	49·9	50·6	48·9	24·5
FRI. 5	N.N.E.	49·6	41·9	54·0	30·5	...	48·1	50·1	48·9	22·3
SAT. 6	E.N.E.	50·0	44·2	57·4	32·6	...	48·4	49·6	48·9	23·1
MEANS...	...	49·4	44·2	55·0	37·9	Tot. ...	50·5	50·3	48·6	32·0

Remarks.—The weather has been rather dull, with cold winds, and very sharp frosts on the mornings on the 4th, 5th, and 6th inst. No rain has fallen since the 29th ult.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—54·8°.

ACTUAL TEMPERATURES:—

LONDON.—*May* 10 (12 P.M.): Max. 60°; Min. 45°.
PROVINCES.—*May* 10 (6 P.M.): Max. 62°, Bath; Min. 49°, Tynemouth.

A Horticultural Hall.

WE may shortly learn of some further practical attempt being made to arouse public interest in this object, as it is rumoured that the Council of the Royal Horticultural Society will shortly be urged to approach the Government with a view to obtain the grant of a suitable site for the erection of such a hall. No doubt, could such a site be obtained, an immense deal would be gained. It is not at all improbable that, with a site furnished, the money could be raised to enable the hall to be erected; but the getting of the site by purchase presents very great difficulty, as land is so costly in London, especially in any central position. Indeed, so enormous is the value of land that it would, were it a case of purchase, cost as much to purchase a site as to erect a suitable building. But it needs a good deal of confidence in the generosity of a Government to assume that it will grant what is proposed to be asked for. The present Government has, no doubt, been generous to the Royal Botanic Society in the matter of leasing to them that splendid area in the Regent's Park. It is scarcely too much to say that, either from a scientific point of view, or from that of a national industry, the Royal Horticultural Society accomplishes more in one year than the Royal Botanic Society has done in the whole term of its existence. What the Royal Agricultural Society is to agriculture the Royal Horticultural Society is to horticulture, if, indeed, it be not very much more. But Governments are hard to move, especially if any appeal to their generosity, even for most important national purposes, has not some powerful influences behind it, or if no political object is to be gained. No doubt a government may find itself justified in sheltering itself behind a refusal, on the ground that, granting so great a favour to one society would but entail similar applications from many other bodies. In this connection it may be urged that several scientific societies are already housed in one building by the favour of the Government. The Royal Society, the Chemical Society, the Linnean Society, the Society of Antiquaries, the Royal Academy, all find quarters in Burlington House; whilst the University of London occupies a site in immediate proximity, a site that may be vacated if the University should be transferred to the Imperial Institute.

A horticultural hall, if erected, could hardly be continuously employed for horticultural purposes, and as a huge area for exhibition, there is good reason to assume that such a building would be available for similar purposes by other, and to some extent, cognate bodies. For all ordinary purposes, even the Royal Horticultural Society could not well utilise a huge hall more frequently than once a fortnight, and as ample light is indispensable for most shows, and for garden products notably, the roof must be largely of glass. It is evident, therefore, that the basement would have to consist of a series of offices with a lofty, well lighted hall above. That several great scientific or industrial societies could thus be housed under one roof is evident.

It is pleaded that for the purposes of the Royal Horticultural Society's meetings, of which there are some twenty-four now held during the year, the present Drill Hall is not large enough. That is sometimes, but not always, true. Still, we may not forget that the securing of the Drill Hall when South Kensington was evacuated was a great gain, and the society has under its roof developed wonderfully. But it must also be remembered that for London the Drill Hall is a large building, and except Olympia, the Crystal and Alexandra Palaces, or the Agricultural Hall, it would be very difficult to find a building in the metropolis that would give more available space. If, therefore, the present Drill Hall be admitted to be occasionally too small, a very large site would be needful to enable such hall as seems desired to be provided. That could hardly be done in London; but, of course, it might be possible to secure a building, giving halls one above the other, and in that way providing the needful area. Still, that is not what the advocates for more room seem to desire. If the proposed appeal be made to the Government, there is just a possibility of success, whilst the chances of refusal are very much greater, in spite of the fact that the Royal Horticultural Society is probably the most important body of its kind in relation to horticulture in the whole world.

It has often been said that the Westminster Aquarium occupies one of the finest sites in the kingdom, yet it is but a music-hall on a large scale. True, its area is occasionally employed for exhibitions, but the surroundings render its utilisation for such meetings as those of the Royal Horticultural Society impossible. St. Stephen's Hall is at present not largely used. It is roomy, but needs a materially lighter roof. Its position is first rate, and had it the aid of a powerful light, and if it were anywhere else but where it is, it would make a capital hall for the purposes of the Royal Horticultural Society. At present it stands in a great position, and is unworthily occupied. Probably it is larger than the Drill Hall, but that is uncertain. If not larger, no gain would attach to removing to it. However, a pretty problem is proposed to be considered, but the solution is not to be readily found.

ROYAL HORTICULTURAL SOCIETY.—At the next meeting of the Committees of this Society to be held on Tuesday, May 16, a lecture on some of the plants exhibited will be given at 3 o'Clock, by the Rev. Prof. G. HENSLOW.

NATIONAL ROSE SOCIETY. — The Rev. H. HONYWOOD D'OMBRAIN and Mr. EDWARD MAWLEY, hon. secretaries, desire us to state that a meeting of the General Purposes Committee will be held at the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, the 16th inst., at 3 P.M., for business purposes.

HORTICULTURAL CLUB.—The usual monthly dinner and conversazione will take place on Tuesday, May 16, at 6 P.M. The subject for discussion will be "The Method of Preserving Vegetables by Evaporation, as Carried Out at Rayne in Essex," to be opened by Mr. R. GOFTON SALMOND.

THE SURVEYORS' INSTITUTION.—The Institution will be closed from May 16 to May 25 (both inclusive) to facilitate the removal to the society's new house, 12, Great George Street, Westminster, to which all communications should be addressed on and after May 24.—The next ordinary general meeting will be held on Monday, May 15, 1899, when a paper will be read by Mr. R. M. D. SANDERS (Fellow), entitled "Land Purchase in Ireland." The chair will be taken at 8 o'clock.

THE HYBRIDISATION CONFERENCE.—Judging from what we hear, this is likely to be an important affair. Several of the leading experimentalists from the United States, as well as from the continent, have intimated their intention of being present, and others who are not able to come will

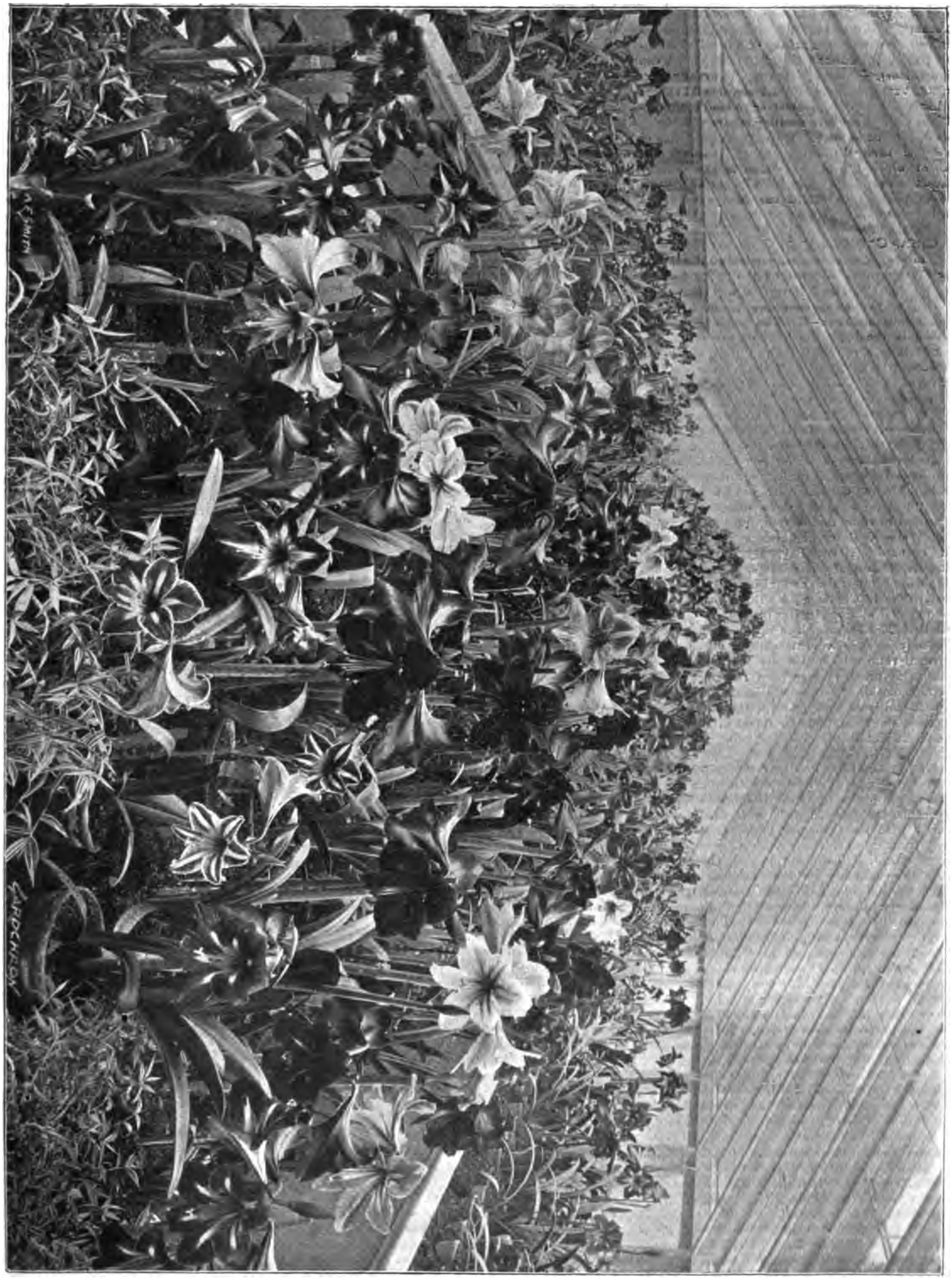

FIG. 108.—INTERIOR OF CAPTAIN HOLFORD'S HIPPEASTRUM-HOUSE, WESTONBIRT, TETBURY. (SEE P. 301.)

send papers or illustrative specimens. We hear of a representative from the United States Department of Agriculture, of Messrs. DE LA DEVANSAYE (Anthuriums), MEEHAN, Philadelphia; HUGO DE VRIES, Amsterdam; BAILEY, of Cornell University; FOCKE, BURBANK, MAX LEICHTLIN, DUVAL (Bromeliads), MARLIAC, MARON, TRUFFAUT, LEMOINE, VILMORIN, and of other continental raisers as likely either to be present or to send communications; whilst our own seedling-raisers will doubtless be present in force. We expect a gathering of scientific horticulturists and experimenters the like of which has not been seen in this country since the ever memorable "'66." Arrangements are in progress to accord our foreign visitors a cordial reception.

CHEAP CONVEYANCE OF COUNTRY PRODUCE.—Here are some additional particulars relating to the system to be adopted by the South Eastern and London, Chatham & Dover Railway Companies, of which we gave an announcement in our last issue. The conditions are:—(1) The produce shall be packed in the boxes which are on sale at the different stations, or similar ones; (2) the boxes shall be secured by nails only; (3) the produce shall be conveyed at owner's risk, and the carriage prepaid, the prepayment being made by parcels stamps on sale at the stations; and (4) no box shall be of greater weight than 60 lb. Provided that these conditions are fulfilled the produce will be conveyed at a reduced charge of 4*d.* for every 20 lb., and 1*d.* additional for every 5 lb., or part thereof, up to 60 lb. (including delivery within the usual limits), from all stations (except those within 20 miles of Charing Cross) to Birchington, Broadstairs, Deal and Walmer, Dover, Folkestone, Hastings and St. Leonards, Herne Bay, Hythe, Littlestone, Margate, Ramsgate, Sandgate, Westgate-on-Sea, and Whitstable, and also from all South-Eastern and Chatham & Dover stations to London and stations in the companies' suburban district. The boxes, which are intended for use once only, so as to avoid the expense of conveyance of small returned empties, are to be sold at the stations at prices ranging from 1½*d.* to 5*d.* The adoption of this system should be of great advantage to cultivators of fruit in the south-eastern counties, and to consumers resident in London and the places mentioned.

NATIONAL FOOTPATH ASSOCIATION. — A general meeting of this Society was held on Monday evening, the 8th inst., at the Holborn Restaurant, to consider the question of the amalgamation of the Society with the Commons Preservation Society. Lord RIBBLESDALE, the President, occupied the chair. Mr. J. F. TORR having read the report of the acting secretary on the business transacted during the last six months, the Chairman said, that when, six months ago, the secretary died, proposals were made by representatives of the Commons Preservation Society, which had the same interest as themselves, for the amalgamation of the two societies. A sub-committee which was appointed to consider the question had gone fully into the delicate question of financial adjustment, and had reported unanimously in favour of amalgamation. He moved that the proposals be accepted. The motion was seconded by Sir JOHN BRUNNER, M.P., and after discussion the proposal was agreed to.

HOLLY "GOLDEN KING." — We learn from Messrs. LITTLE & BALLANTYNE, Carlisle, that this new variety of Holly, which received an Award of Merit at the last Temple Show of the Royal Horticultural Society, has obtained a First-class Silver Medal at the Ghent show—a fact we were unable to ascertain at the time. It is a distinct variety, and the yellow variegation is very bright.

WINTER-FLOWERING TROPÆOLUM.—When at Cambridge recently we noticed in the University Botanic Gardens a very valuable winter-flowering Tropæolum, that furnished a rafter in one of the span-roofed houses there, and gave a magnificent blaze of bloom. Mr. LYNCH, who has won so much esteem at Cambridge, said he had some difficulty in obtaining a variety to his liking until Mr. BLAIR, of Trentham gardens, furnished him with this one, which he now calls "Blair's Beauty of Trentham." The flowers are of moderate size, intense colour, and have a long spur. The leaves are very small.

CAREX PANICULATA.—In the semi-wild portion of the grounds at the Botanic Gardens, Cambridge, is a specimen of this interesting plant that well illustrates its peculiar root-growth. The specimen has an upright stem 3 feet high, which consists of closely-packed roots. That this is not a proper stem only becomes apparent after close observation, as the drooping foliage screens the lower portion of the plant from view.

MR. B. HARTLAND'S NEW NARCISSUS.—The pretty variety of Narcissus figured by us in our last issue, p. 283, has been distinguished by the name Parmenia by its raiser.

METROPOLITAN OPEN SPACES.—There is some prospect of Lambeth Palace Gardens being added to those now under the care of the London County Council—at least, permission has been given for volunteers to drill there, with a hint at the possibility of a wider use. What a boon this would be for the neighbourhood! only the inhabitants thereof can form an adequate idea. We know what is said to attend on a healthy body; and this concession on the part of a great ecclesiastical authority would show the existence of a healthy mind. The London County Council have acquired the famous Elizabethan mansion and park at Bromley, which will as soon as possible be placed at the service of the community. We understand that some 16½ acres in extent have been secured in what is called Upper Sydenham, to be opened in the course of the ensuing summer as a recreation-ground. In Deptford a children's gymnasium has been opened, and another at Cable Street, Shadwell. Again, between Wandsworth and Putney, on the river banks, 19¾ acres of land has been secured, and will be opened as Wandsworth Park, some nine months hence. An area of about three-quarters of an acre has been formed out of what was the forecourt of Aske's School, in Pitfield Street, near Shoreditch Church; and there is another small plot in course of transformation in Ivy Street, not far from the latter. A small pleasure-ground is now being arranged at Bromley-by-Bow. Another public garden is that known as Northbrook Park, now in the hands of the County Council. There are 17 acres of grass-land at Lea, given by Lord NORTHBROOK. The Council, in conjunction with the vestry of the parish of Lea, have agreed to purchase Manor Park, 9¼ acres, and the old Manor House, Lord NORTHBROOK'S birthplace. All this indicates progress in a healthy direction.

MR. GEO. SAVAGE, whose death is recorded in the American journals, was one of the most distinguished Orchid cultivators in the United States. Deceased was born in Warwickshire, England, fifty-four years ago, and after employment for a time in several private establishments here, emigrated to America, and served in Mr. GEO. SUCH'S establishment at South Amboy, New Jersey, and other nurseries. But it is mainly in connection with the collection of Orchids belonging to the late W. S. KIMBALL, of Rochester, N.Y., that deceased was best known on that side of the Atlantic. Under Mr. KIMBALL, he formed a collection second to none in the States, and produced a number of hybrids. His name is commemorated in Cypripedium Savageanum.

THE FLORISTS' MUTUAL FIRE INSURANCE ASSOCIATION, that had been established in the United States of America, has just dissolved. Much regret is expressed in the American journals; the florists and horticultural trade generally are blamed for the disinterestedness and apathy they have shown in the matter, and they are warned that many will live to regret their inaction. Quite contrary experience has been our own Nurserymen's, &c., Hailstorm Insurance Corporation, which appears to have received very satisfactory support indeed.

VEGETABLE PATHOLOGY.—M. G. STAES, of the University of Ghent, has recently published an interesting article on the science—phytopathology. The Krundkundig Genootschys Dodonæa, at Ghent, has done most to familiarise us with the new science. In fact, this society has for some time made a study of phytopathology; but only since the end of 1892 has publicity been given to the fact that the society on application was prepared to furnish, gratis, information on any subject relative to the diseases of plants. A comparatively large number of applications has been received—over a hundred since 1894. It has, further, been arranged that at Ghent, Alost, and Turnhout, where public instruction is given, a certain number of lessons relative to plant diseases shall be included. In 1894 there was a public course devoted to the diseases of plants. M. G. STAES has been entrusted with the organisation of these lessons. In 1895 the Société Dodonæa started, in connection with the Phytopathologisch Laboratorium at Amsterdam, a journal *Tijdschrift over Plantenziekten* (*Journal of Plant Diseases*), under the editorship of Professor RITZEMA BOS and M. G. STAES. This publication is in its fifth year; it is illustrated, and issues plates. At the Agricultural Institute at Gembloux, phytopathology forms part of the course of instruction; but at the State horticultural and agricultural schools the study of injurious insects and of cryptogamic diseases is made of less importance.

LECTURES ON THE EVOLUTION OF PLANTS.—Prof. D. H. CAMPBELL has published through MACMILLAN & Co. a series of lectures delivered by him at the Leland Stamford Junior University. Beginning with the simplest forms of life, the author passes in review the various groups of plants. Prof. CAMPBELL considers the Volvocineæ to represent more nearly than any existing forms the ancestral type of all the higher green plants. From it have arisen a number of independent lines of development resulting in very divergent types of structure. The first step is the loss of motility in the vegetative cells. Then come the beginnings of a distinction between vegetative and reproductive cells, and the arrangement of cells in threads or thalli. The varying arrangements met with among Algæ are summarised, the red and brown Algæ being considered to represent the highest expression of their respective lines of development. The higher green plants are considered to have originated from the simple fresh-water green Algæ, and so we pass from Mosses and Liverworts to Ferns, Conifers, Cycads, and flowering plants. Plants, in fact, "have succeeded in adapting themselves to almost every environment. From the open ocean to arid deserts and lofty mountain tops, some plants have succeeded in establishing themselves, and from the equator to the poles no district is completely wanting in some types of vegetable life." These are very interesting matters for speculation, and their discussion cannot fail to elicit further information and to correct error.

A MONUMENT TO THE LATE BARON VON HÜGEL.—A flower show, under the patronage of the PRINCESS METTERNICH, was held in Hietzing, near Vienna, on Thursday, May 11, which was instituted by the gardeners and garden-amateurs of this pretty suburb of the Austrian metropolis, for the purpose of obtaining funds wherewith to erect a monument to the memory of the renowned traveller, discoverer, and horticulturist, the late FREIHERR KARL ALEXANDER VON HÜGEL. One of the main ideas of the exhibition was to exhibit most of the plants wherewith HÜGEL enriched European gardens, a collection of which has been carefully cultivated in the imperial gardens at Schönbrunn, and in those of

Graf Harrach, at Bruck, on the Leitha. The amateur's and gardener's club were so fortunate as to obtain, for the site of their show, the glasshouses and garden in which, in the forties, the flower-shows of K. A. von Hügel took place, and which had such great attractions for the Viennese. This garden passed on Hügel's removal to Florence in 1849 into the possession of Prince Wrede, and later into that of the Duke of Cumberland. This possessor soon sold it, and so it came into the possession of Dr. Ehrenfeld, who, in the friendliest manner, allowed the show to be held therein.

Apples from the Antipodes.—The inland traffic manager of the Orient line of Royal Mail steamships informs us that the *Ophir* is now on her way from Hobart, &c., to Tilbury Docks, with 24,000 cases of Apples.

Gardening not Healthy.—Gardening is generally considered one of the healthiest of occupations, but the German Gardeners' Association has issued a warning to those who intend entering the industry. They cite the fact that during the years 1887 to 1897, of the 291 members of the Association who died in Germany, not fewer than 142 succumbed to consumption and other affections of the lungs.

De Langhe's Cyclamen papilio at Antwerp.—The progress made with this extraordinary strain of Cyclamen during the last year is very great; the flowers which M. de Langhe showed at the Drill Hall last year had more or less of a drooping habit, which English florists object to, but now the blooms are much more upright, and the whole habit of the plants has improved. Nothing could possibly have been finer than the group shown at the Antwerp exhibition, and he deservedly received a large Gold Medal, and for the cut flowers a Silver-gilt Medal.

Stock-taking: April.—This month we have again to note a falling-off in the value of imports to the amount of £889,694—that is to say, the imports for last month amounted to £39,357,000, against £40,246,716 for the same period last year. The items of decrease are:—Animals, living, for food, £18,627; duty-free food, £1,284,380; Tobacco, £30,255; chemicals, &c., £14,777; raw materials for textiles, £1,276,812; and Parcel Post, £1,062. Barley fell off £328,387; Wheat gave way £626,515; and Oats record a drop of £144,252. The import of cotton fell away by some 863,668 cwt. (value £1,520,288); the reduction in Jute is £47,186. Wool increased its value by £37,487. The increase is in oils, metals, caoutchouc, wood and timber, tallow, manures, &c. It may be noted that we imported Clover and grass-seeds to the value of £52,282; Flax or Linseed, £263,878; Rape-seed, £16,873. Of paper-making materials, Esparto and other vegetable fibres, mounted up £77,035; pulp of wood, chemical and mechanical, £140,824; wood and timber are valued at £376,275, against £388,425 in April, 1898. The following are our usual quotations from the summary table for the past month:—

Imports.	1898.	1899.	Difference.
	£	£	£
Total value ...	40,246,716	39,357,022	—889,694
(A.) Articles of food and drink — duty free	14,262,300	12,077,920	—1,284,380
(B.) Articles of food & drink—dutiable	1,899,372	1,951,532	+52,160
Raw materials for textile manufactures	7,610,695	6,333,883	—1,276,812
Raw materials for sundry industries and manufactures	3,441,017	3,934,956	+493,939
(A.) Miscellaneous articles	1,174,175	1,323,463	+149,288
(B.) Parcel Post ...	99,117	98,055	—1,062

We now make room for the figures connected with fruits, roots, and vegetables, suggesting to the authorities that they might with advantage to both producer and consumer gather more ample statistics. A lot of Spanish Asparagus has made its way to the markets, lacking mention of place of origin.

Imports.	1898.	1899.	Difference.
Fruits, raw:—			
Apples ... ... bush.	167,121	148,878	—18,243
Cherries... ... ,,	...	24	+24
Grapes ... ... ,,	2,259	1,626	—633
Lemons ... ... ,,	135,486	201,326	+65,840
Oranges ... ... ,,	589,337	1,023,171	+433,834
Pears ... ... ,,	1,355	957	—398
Plums ... ... ,,	1	...	—1
Unenumerated... ,,	63,760	86,029	+22,269
Onions ... ... ,,	613,633	639,183	+25,550
Potatos ... ... cwt.	1,186,653	514,748	—671,905
Vegetables, raw, unenumerated ... ... value	£131,952	£149,367	+£17,415

The value of imports for the past four months is put at £157,551,443; and this compared with £159,317,623 for April last year, shows a decrease of £1,766,180. Coming now to—

Exports,

we have to record an increase of £1,961,435, that is to say, in April last year the total was £17,496,011, the figure for last month was just £19,457,446. Coals, &c., figured largely in the increase in raw material exported, as does also wool; yarns and textile fabrics went up by £625,539; new ships were exported to the value of £492,365; metals, and sundry manufactures therefrom, increased by £193,351; machinery and millwork advanced by £11,288; articles of food and drink increased in export and value by £54,376. By the way, an inquirer into the export of confectionery, &c., states that he found these were placed to the credit of pickles in the records of the Board of Trade! The Canadian preferential tariff does not appear to be so much appreciated as it might be, so says the Finance Minister of the Dominion; exports to that part of the world, however, are gradually swelling in volume: of the four months just ended we note the exports have achieved £81,511,487, against £75,203,129 for the same period last year—or a gain of £6,308,358. This looks very well indeed, and with a clearer political outlook all round even better results may with safety be anticipated.

The Fifty Best Orchids at the Ghent Show.—M. A. A. Peeters, nurseryman, 62, Chaussée de Forest, Ghent, writes: "I am happy to inform you that the fifty best Orchids that were exhibited at Mont St. Amand belong to me."

Reduction of Working-hours in Nurseries.—A valued boon has been conferred on their *employés* by the nurserymen in the Woking district, in the reduction of the hours of labour on Saturdays. Through the cordial co-operation of the heads of the various establishments, the working hours on that day have been reduced one and a half hours, viz., from 5.30 to 4 p.m. This concession by the nurserymen will do much to foster a friendly feeling on the part of their men, and is an example which might be copied with advantage by other establishments throughout the country.

The Nightingale is not altogether unknown to London suburban districts. On Wednesday evening last, at 11 p.m., we had the pleasure to hear this delightful bird singing beautifully at the extreme corner of Wimbledon Common, adjoining Putney Hill, and scarcely a mile from the High Street. The bird was resting in a Birch tree not many yards from a lighted street-lamp.

Publications Received.—*Roses and Rose Culture*, by William Paul (Simpkin, Marshall, Hamilton, Kent & Co., London). When we say that this is the ninth edition (tenth thousand) of this shilling illustrated handbook, we have sufficiently set forth its use and value.—*Agricultural Journal of the Cape of Good Hope*, March 30. This contains, among other articles, a good paper by Mr. Thos. Sims, on the Elementary Principles of Sylviculture or Woodcraft.—*Proceedings of the Agri-Horticultural Society of Madras*, October-December, 1898.—*Annual Report for* 1898 *of the Botanic Gardens, Straits Settlements*, by H. N. Ridley, director. This includes some notes by Mr. C. Curtis on a Botanical Tour in Perak.—*The Fern Bulletin*, Vol. VII., No. 2, April (quarterly).—*Société Nationale d'Horticulture de France*, Liste générale des membres de la Société. Arrêtée au April 1, 1899 (Paris).

PLANT PORTRAITS.

Cienkowskya Kirki.—An East African Scitamineous plant allied to Kæmpferia, and not far from Ginger (Zingiber). It bears large violet flowers with a yellow centre. *Revue Horticole*, April 1.

Diervilla Wagneri ×.—A cross between D. florida and D. Middendorffiana, *Gartenflora*, t. 1461.

Helenium autumnale superbum, *Garden*, April 1.

Pear Doyenné d'Alençon, *Bulletin d'Arboriculture, &c.*, April.—An early variety, of excellent quality.

Rhododendron diversifolium ×.—Said to be a hybrid derived from R. arboreum. Some of the leaves are linear, others oblong, and the numerous rose-coloured flowers are in terminal clusters. *Wiener Illustrirte Garten-Zeitung*, April.

Solidago nemoralis, Aiton, *Meehans' Monthly*, April.

HIPPEASTRUMS (AMARYLLIS) AT WESTONBIRT.

For many years the late Mr. Holford took great interest in the cultivation of Hippeastrums, and half a century ago he purchased the following species:—aulicum, reticulatum, pssitacinum, solandriflorum, stylosum, Johnsoni, and some of the best hybrids from the noted collection of the late Mr. Sweet, of Clifton, Bristol. By crossing and intercrossing these, some pretty hybrids were obtained, but the constitution of most of them became weak, especially those having high-coloured flowers, and it soon became needful to employ a more robust species in order to strengthen the constitution of the strain. Consequently, in 1870, H. pardinum was purchased. The flowers of this species are 6 inches in diameter, creamy-white in colour dotted over with crimson, and having scarcely any tube. This species was employed as a male parent, which improved both the constitution and also the form of the flowers. In 1879, a variety named William Pitt was added to the collection; the flowers of this were small, of a shade of scarlet, with a broad white stripe up the centre of the segments. This variety when crossed with the best of the seedlings, gave added brilliancy of colour to the larger flower. A species named Leopoldi was next purchased from Messrs. Veitch & Sons, Chelsea, and this, when crossed with other varieties, gave a roundness of form to the segments, but the first crosses from these did not possess the enduring property of the flowers of the older varieties, and until further and distinct crosses were made, good constitution and substance, and colour in the flowers were not obtained. In 1880 H. Empress of India was purchased, this fine-constitutioned plant proving an excellent parent, and imparting vigour to our best seedlings. Out of the thousands of seedlings raised, only those of perfect form, good substance, and pleasing colours are retained and named; and these at the present time number about 300, and includes flowers of a variety of shades of colour and markings. The shades of crimson, scarlet, and the white grounds, flowers flaked and veined with scarlet, rose, purple, and vermilion, are of perfect shape and good size, but the white form raised some years ago has not in its numerous seedlings improved in either of these points. Seedlings are raised which flower in three years, the seeds being sown as soon as they are ripe (which is generally during the month of May), in pans or boxes of light sandy soil, placing these in a brisk moist heat to germinate. As soon as the bulblets are formed they are potted in 3-inch pots, three plants in each, kept growing in a gentle heat without a check, and not drying them off till they become large enough to occupy 6-inch pots. The compost used for their final potting consists of three parts fibrous loam, one part leaf-mould, some silver-sand and charcoal to keep it porous; and in this they are first flowered and proved. After flowering, they are grown on till they have completed the two centre leaves, then gradually dried off at the roots, and exposed to the full sunshine. This is found to be beneficial to the bulbs, and they flower strongly the next season. They are wintered in a dry, airy position, withholding water until the time of starting. The house illustrated (fig. 108) is 56 feet long, and 24 feet wide, having a wide central pit, and two narrow side-pits, which contains about 2000 bulbs in pots plunged in the beds. This house was erected by Captain Holford for the special purpose of growing Hippeastrums, and he takes the greatest interest both in the selection of the parent-flowers in crossing, and the special cultivation of the plants.

FLOWERS ON MIDSUMMER SHOOTS OF THE APPLE AND PEACH.

THESE are not uncommon, but when they do occur, they are generally double-flowered by multiplication of petals, or by the substitution of petals for stamens. Moreover, the Apple proper is not formed. A similar state of things occurred in the Peach of which we now give an illustration (fig. 109). It was formed at the end of a young shoot, its five sepals were replaced by leaves, the petals were increased in number, but the true carpels were not present. The specimen was kindly sent to us by Mr. Balderson, of Hemel Hempstead.

PENCILS AND OF WHAT THEY ARE MADE.

THERE are few more useful articles in the world than a blacklead-pencil. While most other things have their seasons of prosperity or usefulness, a blacklead-pencil is always with us. Yet there are times, we are informed, by those who ought to know, namely, the makers, when there are greater demands for these useful little articles than at others. For instance, at the time of a general election, the homely pencil is fulfilling a great work, and the destiny of the country, it may be, is dependent upon its use in the ballot-boxes. But there are other seasons also when pencils of a different character are much in demand—we mean at the season from which we have now emerged, when no ball-room or dance-programme is complete without its daintily-finished appendage, the pencil.

Under these circumstances, the history of the birth and growth of a blacklead-pencil, as seen by me at Messrs. E. Wolff & Sons, Falcon Pencil Works at Battersea, may be of some interest, more especially as wood, though perhaps not the primary material in its composition, is by no means an unimportant factor. But there are woods and woods used in pencil-making; and though of late years many new woods have been tried, the so-called Pencil-Cedar still maintains its superiority over all others, and is always used for pencils of the best quality. The reason for this is obvious, for anyone who knows anything of the nature of woods will at once own that no other wood equals it in the ease with which it can be cut, as well as in its straight grain and absence of knots. It is the Juniperus virginiana of Linnæus, and is the most widely distributed of North American Coniferæ, being found, according to Prof. Sargent, in Southern New Brunswick, shores of Georgian Bay, Northern Michigan, Northern Wisconsin, and Minnesota, South, to Cape Malabar and Tampa Bay, Florida, and the Valley of the Colorado River, Texas, West to Eastern Nebraska, Kansas, and the Indian territory to about the 100th parallel of west longitude; in the Pacific region, Rocky Mountains of Colorado to Vancouver's Island, British Columbia, not extending to Western Texas, California or Oregon; in Utah, Nevada, and Arizona rare and local. The tree grows to a height of about 80 feet, and to a diameter of about 3½ feet. In America the wood has a variety of uses, such as the construction of posts, sills, railway ties, and for cabinet-making, and it is said to be durable underground.

It is the wood of this tree, then, that is always used for the best pencils, and on my visit to the works before-mentioned, I saw under shelter of a roof in the yard, a large quantity of huge logs, some perfectly sound, while others showed knots and shakes, and others again a large proportion of decay, the work of the spawn of a fungus. These logs have to be very carefully overhauled, and the close even-grained wood is alone selected for pencil-making. Pencil Cedar comes into England in very large quantities, always in the form of logs, and is shipped mostly from Florida.

[Juniperus virginiana, the so-called Red Cedar, is not only widely distributed, but it runs into numerous varieties, some of which are in cultivation. Some of these varieties are thought sufficiently distinct to be counted as species. Professor Sargent, we believe, considers the Florida form to be worthy of a specific name. We may here remark that a specimen sent us lately from Florida by Mr. Thomson seems to be identical with the form known in gardens as J. Schotti. The Bermuda Cedar is closely allied to the Juniperus virginiana, but differs from it. It might be utilised for "Cedar" pencil-making. The Jamaica form, specimens of which were sent to us by Mr. Fawcett, are so like J. virginiana that we should assign them to that species. We presume the wood of the Jamaica tree would be equally serviceable; in any case, it is worth trying to ascertain whether another minor industry might not be added in Bermuda, Jamaica, and other islands in the West Indies. ED.]

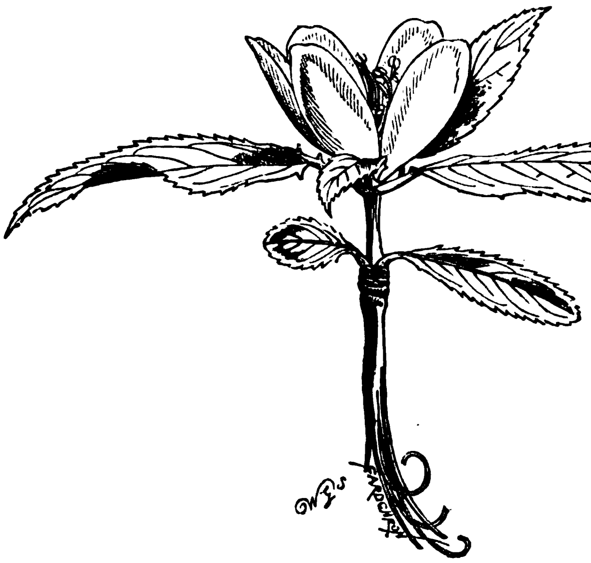

FIG. 109.—PEACH BLOSSOM ON SUMMER SHOOT: SEPALS LEAFY; PETALS AND STAMENS NUMEROUS; PISTIL ABSENT.

Before proceeding to the inside of the factory, I noticed in the same yard, where the timber was stacked, a number of casks or hogsheads, which were filled with plumbago, or as it is commonly called, black lead. This was in a crude form, just as it comes from the mines, and as it is imported from Spain, India, Mexico, and Ceylon. Besides this, there was a large stock of "pure Cumberland lead," which I was informed was purchased many years ago by the firm, and is very highly prized by them, as it produces the best pencils that can be made. A cask of plumbago is like so much coal-dust, mixed with lumps of irregular sizes. Passing into the factory we find a powerful crushing machine, into which the plumbago is put and crushed, or ground to an impalpable powder. It is next made into a thick paste under heavy rollers, and if it were brown instead of black it might readily be mistaken for chocolate paste. Very great care and expert knowledge is required in preparing this paste; the least coarseness or grittiness would, of course, spoil the pencil, and the substance has to be specially prepared for the different grades of hard and soft leads. When it is sufficiently prepared it is placed in a kind of cylinder, with a small opening at the bottom of the diameter of the lead required for the pencil, either round or square. The cylinder is attached to a powerful machine, and an enormous pressure is brought to bear upon the contents, so that the lead in its plastic state is squeezed through the aperture at the bottom of the cylinder, and comes out in the form of a long black cord—more, indeed, like a strip of india-rubber than anything else. It is taken by girls, who sit at tables immediately contiguous to the machine, and laid in grooves on a thin plate, each strip being cut off of uniform length with a knife. These strips are then removed to a kind of oven, and submitted to a process of drying or baking, until they become hard; they are then ready to be placed in their wooden cases, which are prepared by first planing the wood to an uniform thickness—namely, half the thickness of the pencil, sufficiently wide to cut six pencils, and of the length required, for pencils vary both in length and thickness. Six grooves are then cut longitudinally and simultaneously by a machine, either half round and of the depth and diameter to fit the lead, or square, according as the pencil is to have a round or a square lead. The dried or baked leads are next taken, six at a time, and dexterously laid in the grooves made in the wood, and when so placed by one set of girls, are passed on to others who take a correspondingly grooved piece of wood, and brushing each piece over with glue, bring the surfaces together. A number are then placed in a small screw-press and submitted to very heavy pressure. So neatly is this joint effected, that it is often difficult to find it in a finished pencil. When the glue is set and quite hard, they are removed to a machine which ploughs the wood out between the leads, cutting it half-way through; by turning it over and repeating the operation on the other side, the wood is cut quite through, and the six pencils all fall out in their cylindrical forms. All this is done with wonderful accuracy and rapidity. The pencils are next rubbed down with glass-paper to remove any roughness, and to give them a perfectly smooth surface. Though this may be the finishing touch of many pencils, a large proportion of them are now polished or stained in various colours, and then polished. This is all done by machinery, the pencils being really French-polished, and not varnished. The final touches consist of cutting off the ends, pointing, and stamping the maker's name.

At the time of my visit, a large number of girls were employed in making the dainty little white pencils for ball programmes. Some were fixing the enamel-like coating over the slender Cedar-wood; others were fixing the ivory or bone tops, and others again were attaching the white silken cords and tassels.

As some indication of the extent of the pencil manufacture, I may say that the stock of "leads" stored away in boxes at the factory at the time of my visit, and ready to be placed in their wooden receptacles, was estimated at many hundred thousand gross.

The pencil manufacture was at one time carried on at Keswick, in Cumberland; but I am assured that at the present time little is done there, but that the principal factories are in the neighbourhood of London, and that which I had the privilege of visiting is the largest. Though pencils are made on a large scale in Bavaria and other places on the continent, it is satisfactory to know that those of English make are of the best quality in the market.

An interesting branch of the pencil manufacture is, that the resulting chips and shavings of the Cedar are not absolutely waste products. The wood, as is well known, contains a quantity of very fragrant oil, and the cuttings are all very carefully collected, and sold to the chemists and perfumers for distillation.

Though, as I have before said, other woods than that of the Pencil Cedar have been, and are still, sometimes used, such as Lime (Tilia europea), and American Redwood (Sequoia sempervirens), yet no wood equals that of Juniperus virginiana, either for ease in cutting, freedom from cracking or warping, or adaptability for finish. *John R. Jackson, Museums, Royal Gardens, Kew.*

LILIUM AURATUM IN SCOTLAND.

In the months of August and September last year, visitors to the watering places on the shores of the Firth of Clyde flocked in large numbers to see a grand example of the golden-rayed Lily of Japan, Lilium auratum, growing in the small garden in front of Darroch-dhu Cottage, Dunoon, the residence of Mr. James McGibbon, to whom we are indebted for the accompanying illustration from a photo (fig. 110), showing the stately proportions of the handsome specimen. The figures in the photograph, among whom Mr. McGibbon is seen on the right, give a good idea of the size and stature of the plant.

The history of the specimen given to us by Mr. McGibbon is rather interesting, although simple enough. He bought the original bulb, in a bag containing a dozen, in Messrs. Hutchison & Dixon's Public Sale Rooms, Glasgow, six years ago, the cost being 3*s*. the lot, or 3*d*. the bulb. This particular bulb he planted soon afterwards in his garden at Dunoon, where it has grown and thriven ever since without more than a slight protection from severe frost in the winter.

In 1897, it sent up sixteen stems, which bore 292 blooms, and drew a considerable amount of attraction from visitors to the pretty watering-place. Last year it produced twenty stems, carrying the enormous number of 428 fully-developed flowers; and another stem, which bore twenty-five perfect flower-buds, got injured near the base, and had to be removed, which, had it come to maturity, would have given a total of 453 flowers—a number probably unprecedented on a plant grown in the open air in Scotland. The stems ranged from 5 to 7 feet in height, and the thickest girthed 3¼ inches at the base, and bore forty-three perfect blooms. One malformed flat stem carried as many as sixty-one flowers, all fully developed, but smaller than the others, and made a very pretty show while in bloom. Other stems bore from ten to twenty or thirty flowers, and the gay show they made can be easily seen in the illustration, although it cannot convey to the senses any of the rich odour dispersed around in the early morning and at dewey eve. Travellers who had seen the golden-rayed Lily growing in Japan, India, California, and Australia, as well as in European gardens, all declared they had never seen such a grandly-developed plant, and visitors to the Clyde during the coming autumn would do well to keep it in mind. *Scotus.*

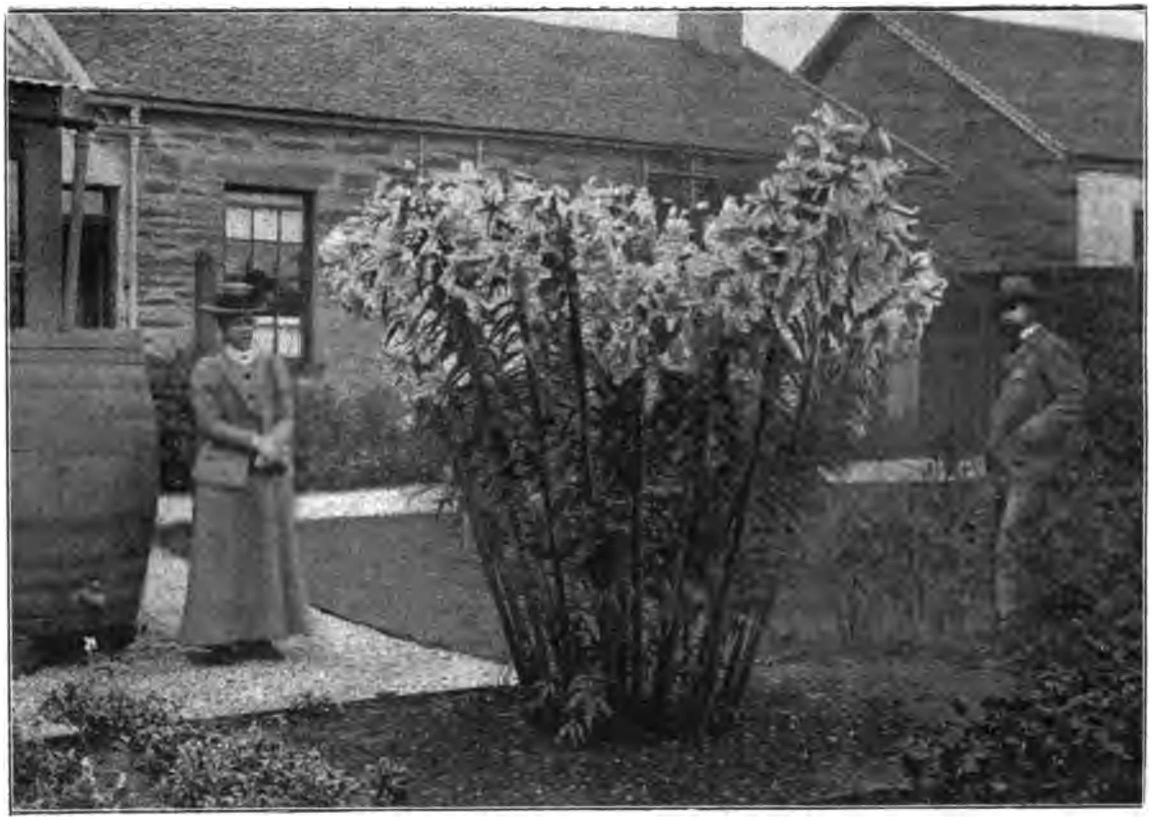

FIG. 110.—LILIUM AURATUM IN SCOTLAND.

HOME CORRESPONDENCE.

GARDEN PESTS.—I received from Mr. Geo. Lamb, of the University Botanic Garden, Cambridge, a number of Tulips which were supposed to be suffering from growing in the shade of an Apple-tree. The bulbs were badly decayed, and were found on examination to be suffering from the attacks of five different pests, any one of which would have been sufficient in itself to cause the blight. These pests were: 1, Julus pulchellus, a pretty but very destructive millipede, known to attack Celery, Cabbages, Wheat, and almost every kind of cultivated plant. 2, Acarus, or bulb-mite; this is allied to the bulb-mite which wrought so much mischief among Eucharis Lilies a few years ago. 3, Larva of a beetle; there are many species of beetle, as of acarus, which prey on cultivated crops and plants; all are to be carefully guarded against. 4, Nematode worms of microscopic dimensions, but none the less destructive because they are small and able to carry out their operations unobserved. 5, Enchytræis parvulus, the Aster-worm described by me in these columns Aug. 14, 1897. This small white worm is now found to be ubiquitous, and while it serves a useful purpose as a scavenger, as I have recently been able to demonstrate, it becomes very injurious when it gets into flower-beds and kitchen gardens. The case of the Tulips is hopeless. All decaying and affected material should at once be burnt, the plots frequently dug, and treated with lime, salt, nitrate of soda, or other insecticide. No highly cultivated plants should be set in the same beds till the latter have been disinfected. Care should also be taken when any new application of manure or fertiliser is made. The gardener should always see to it that mould, decayed vegetable matter, manure, and other materials used are freed from these pests before they are applied to beds or mixed in the flower-pots. Waste materials reserved for fertilising should be mixed with gas lime, salt, or other remedies against these minute but ever-to-be-dreaded enemies of horticulture. I shall be glad to report on other cases, but must ask all correspondents who wish their consignments acknowledged to enclose stamped envelope for reply. *Hilderic Friend* (*Rev.*), *Ocker Hill, Tipton, May* 3.

BIRDS AND FRUIT-TREES.—I can assure my friend, "R. M." (*Gardeners' Chronicle*, p. 268), that the tomtit really does destroy the somewhat advanced buds of the Pear. This year these birds have been very destructive, and I and the men working in the fruit-garden have watched them at a short distance, and upon examining the spot immediately we have found the destroyed buds on the ground beneath the trees. No trace of any insects could be found in the remaining buds. The past year or two the birds have destroyed nearly the whole of the buds of our white Lilac and double-flowering Cherries, and the bushes are half dead as the result. *C. Herrin, Dropmore Gardens.*

—— I do not agree with "R. M., Newbury," on p. 268. I have myself shot tom-tits when pecking at Black Currant buds, and have found the same in their beaks when dead. They are also most destructive to soft Apples, and all kinds of dessert Pears. Last season I was obliged to net my Pears on some trees where I wanted the fruits for exhibition purposes. In the case of some of the trees the net went round them four times, but even then the tits found their way through it. The birds that keep me busy with the gun are bullfinches, tom-tits, blackbirds, thrushes, chaffinches, offinches, and jays. My Cherries are under wire-netting, that is the reason I have not added the starling. I destroy all the birds enumerated above whenever a chance occurs. *E. Coleman, Kent.*

NEMESIAS.—When a few years since Messrs. Sutton & Sons introduced those beautiful half-hardy annuals in variety, known as Nemesia strumosa, the needs of these plants were not fully understood, and they suffered in many gardens from such treatment as raising from seed under glass, then dibbling them out into the open ground direct from the seed-pans. That there is a method of treatment that will ensure entire success is evidenced in a cool greenhouse at Mr. Mortimer's nursery, Farnham, where there are several thousands of plants in luxuriant growth, literally growing like Watercress. The major portion are of the newer compact form, but some are of the earlier and more spreading habit. The plants are in scores, in boxes 12 inches by 9 inches, and 3 inches deep. No doubt it would have been better had there been but twelve plants instead of twenty in each box, but such luxuriant growth as has resulted could hardly have been foreseen. Pricked out more thinly, transplanting into the open ground with good balls of soil and roots would have been easy. These plants, however, are not for this purpose, and possibly they may make a very attractive feature in London a few weeks hence. Seed was sown early in January, and also at the end of the month; but all the plants now are alike, and but for severe pinching would be a mass of bloom. *A. D.*

ALLEN'S EVERLASTING APPLE.—We have grown this Apple here since 1873, and in my fruit record-book the word "None" does not appear, though there are blanks against it in 1876, 1877, 1878, 1879, 1888, and 1893, when I may have failed to enter the date at which the crop was gathered in those years. The latest date we have gathered it was Nov. 19 last year, and the earliest Nov. 7. I put the fruits in a box in the fruit-room, it prevented them from shrivelling. The first week in April (last month) I took out eleven dozen, *i.e.*, five good ones, one dozen that were spotted with decay, and two dozen badly decayed. We are still eating fruits of this variety, and they are mostly unshrivelled. *H. R.*

HOLLAND HOUSE.—The articles in the *Gardeners' Chronicle* upon the gardens at Holland House, reminded me of an account of the history of the place which appeared in the London *Daily News* of October 24, 1889. In this there is a reference to the improvement of the grounds and gardens by Harry Fox, by whom they were acquired on lease in 1749. He purchased them in 1767. Lady Caroline Fox appears to have been the moving spirit in these improvements. Fox's friend, the Hon. Charles Hamilton, of Pain's Hill, "a gentleman celebrated for his exquisite taste in gardening" (Loudon refers to him and his garden in the *Encyclopedia of Gardening*) was consulted, and Mr. Peter Collinson was also called in. Collinson was invited to meet Hamilton at dinner when, as Fox said, in his letter to the former, "Lady Caroline has a thousand questions to ask about flowers, and I not much fewer about plants." In 1750 Fox again wrote Collinson, asking if he could procure some cones of Cypresses, some "Acorns of Scarlet Oak, and a bushel or more of Chestnuts, for sowing." He thought "they are less likely to impose on one so learned than on your ignorant and humble servant, H. Fox." Later, Collinson was again in request, for Fox wrote, "Mr. Watson advised me to sow something with a hard name, to creep on the ground and cover with green all the vacant spaces in my young plantations. I wish you would tell me what it was." On the letter, which, the *Daily News* tells us, is now with others in the MS. department of the British Museum, is endorsed, "Double Snowdrops. To remind him in March to sow Candytuft, Rock Stock, Venus' Looking-glass, &c." *S. Arnott.*

BROCCOLIS.—What has become of the old style of Broccolis? I used formerly to grow a purple Broccoli, with a solid, rather conical, Cauliflower-like purple head [The true Cape Broccoli. ED.], which, when cooked, was green and deliciously "marrowy" in quality, with delicate flavour. Now I can only get seed of sprouting Purple Broccoli, not heads—quite a different thing; and I have had the same sent to me from Northants, excellent as sprouts, but not Cauliflower heads. I used also to grow an excellent vegetable Sulphur Broccoli [This is better known now as "Portsmouth," but it has many synonyms. ED.], very hardy and well-flowered. Now these seem to have disappeared. To me it seems a pity that these old, excellent, and hardy products should be superseded by others which, if more showy for the exhibition-table, are not equal for culinary purposes to the older kinds. Are we not going in too much for the competitive exhibition-table, to the detriment of the dinner-table? Will your correspondent call this a "green-meat" question? *R. Milne-Redhead.*

—— The unfortunate citizen in Londen pent, is, perforce, obliged to make use of such varieties and kinds of vegetables as the market gardeners in their collective wisdom and special knowledge of his supposed tastes, or in utter disregard of them, vouchsafe to bring to the market. In the matter of Broccoli, we have got far away from the delicious early Penzance, which can be had in season by making three sowings, two in April, and one towards the end of May, from October to April. The variety is a small grower with a rather conical head, and being of an erect and moderate growth, it does not need much space in which to grow, say 1½ foot each way. Being less able to withstand frost than some others, I always planted it on a sheltered west border with a high wall behind. The purple Cape is rarely or never seen in London. The plant is hardy, and the head of delicious flavour; and by making more than one sowing, it may be had in season from late October to April. The Walcheren, which is as much a Cauliflower as a Broccoli, is another well-flavoured useful variety, which in the south may be sown as early as March, and as late as May 14. It does not get so large as Autumn Giant if not heavily manured, and is, therefore, a nice variety for the best table; moreover, its flavour is not, then, inferior to a Cauliflower. The same may be said of all Broccolis and Cauliflowers, it is the excessive use of manure that spoils their flavour, and inordinately increases the size of the crowns, besides rendering them susceptible to injury by frost. The Wilcove, Knight's Protecting, and the Portsmouth or Sulphur, seldom come to market, and our tables are consequently the poorer by their absence. *M.*

CULTURE OF CONIFERS.—On page 260 of the *Gardeners' Chronicle* there appeared an extract from a paper on the cultivation of Conifers. The writer there said "Thuya orientalis, however, refuses to unite with this" (Thuya occidentalis). If this be his experience it is totally different to mine. I have grafted T. orientalis on T. occidentalis and *vice versâ*, although I have read and also been told that the two would not unite. Further on Cupressus sempervirens is mentioned as the stock on which to graft the Cupressus family. Surely this is an error, and C. Lawsoniana is intended? C. sempervirens as I know it, is a species of fastigiate habit, a native of the Mediterranean region, and not quite hardy in our climate, therefore totally unfit as a stock for our hardy varieties of Cupressus. *F. Roberts, Winchester.*

THE "CASTOR-OIL PLANT" AT MANCHESTER.—The plant, which appears to be commonly sold in the Manchester markets and by itinerant plant vendors as the Castor-oil plant, is not a Ricinus, but Fatsia (Aralia) japonica. I am informed by a Manchester correspondent that nine out of ten of those who have a Fatsia as an indoor plant, know it as the Castor-oil plant; and the florists in Smithfield and other markets, if asked for such a plant, would give the purchaser a Fatsia. The itinerant plant vendors in Manchester are mainly girls, and, in addition to selling Fatsias as Castor-oil plants, they advise purchasers to pour a dose of castor-oil on the soil occasionally, as this assists the Fatsia in retaining its leaves! It would be interesting to know from what source this custom of giving castor-oil to a Fatsia to enable it to retain its leaves grew; one would think that anything like a frequent application of it to the soil would result in occasioning a consistency anything but favourable to healthy plant life. *R. D.*

CYTISUS SCOPARIUS VAR. ANDREANUS.—The origin of this splendid variety is now well known as having occurred in France some few years ago as a sport from the common Broom—Cytisus scoparius. Up to the present time I have never heard of it occurring in English gardens; but a few days ago, on examining a bed of seedling common Broom, I noticed several plants exhibiting this sporting tendency. To show that these are undoubtedly sports, it is only necessary to mention that the plants in the bed all flowered last season, and none exhibited this characteristic. It is also noteworthy to remark that only on some of the branches was it apparent. I send herewith a few branches for your inspection; and I should be glad to know if any readers of the *Gardeners' Chronicle* have noticed a similar occurrence? In connection with the raising of Cytisus s. var. Andreanus from seed, I have noticed that these flower as a rule much earlier than grafted plants. *E. S., Woking.*

GREEK CURRANTS.—For the past year or two, with the assistance of the Greek Consul-General, we have been enabled to give some particulars concerning the Greek Currant crop—the fall in price and the insufficient market demand. The authorities of the Foreign Office have within the past few days published some interesting details, supplementing notes already published. The industry is in a bad way. Greek eggs are too much in one basket, with the result consequent on a fall. Some fifteen or sixteen years since the Phylloxera ruined French vineyards, and French wine-makers had import arrangements altered so as to admit of the importation of Greek Currants; then was the heyday of that fruit. But the Vine-louse was grappled with—was exterminated; French vineyards were restocked, and prospered; the Greek Currants were no longer required for the production of claret; the vineyards required protection—Currants were shut out; the "good friend" was shown the door, and the Greek grower, unable to find another market, has gone to the wall. It takes five years to set up profitable Currant plantations, and the grower did not care to at once sacrifice his money and his labour, and so the Greek Government enacted that 15 per cent. of the annual crop should be bonded and sold after shipments were finished, for home consumption. There has been a failure in this palliative, and now the Greeks are found to insist on the destruction of this reserve, as Billingsgate salesmen condemn an over-supply of fish to be returned to the sea—dead ! The problem now is, how to make a profit on the present output. Possibly some will advocate the making of claret, getting extra "body" from some other source—perhaps Australia. We can only here express the wish that the Greek agriculturist may find a speedy and effectual solution to the economic problem now set before him for solution. *E. C.*

PRIMULA OBCONICA AND SKIN IRRITATION.—Thirteen years ago I knew a young lady who suffered whenever she touched this plant ; but she was the only member of the family the plant affected. Since that time I have seldom met a person whom it does affect ; but as the irritation is generally felt almost immediately, and each time the plant is handled, it would be an easy matter for any individual to find out for himself. For every one that it hurts there must be a host who feel no ill-effects from it, and why discard so useful a plant simply because someone else has been stung by it ? There is a man in this district who cannot clip Ivy because it makes his face, hands, and arms swell to nearly double their usual size, but we are not thinking of discarding Ivy for that reason. Holly has a bad effect on my own hands and arms, so has the sap of Figs. Violas give me heartburn whenever I am working among them ; but Primula obconica has absolutely no effect upon me. For most purposes, P. obconica is more useful than P. sinensis, and is easier of propagation. *R. E. C.*

—— I have been potting P. obconica by the side of a fellow-workman, and his hands have suffered a great deal. I have never seen or heard of a teetotaller being affected in this manner. *R. E. Brain.*

DOES LAND DETERIORATE ?—The question can be answered yes or no, for land does deteriorate from neglect, starvation, and foulness, and when these three things occur it does so to a great extent and loss, it being unable to produce to its full power. On the other hand, land manured, clean, and well attended to, shows its action on plants by their vigorous growth, and greater productiveness. Liberally-manured, well-tilled, and kept free from weeds, you can plant as long as you choose, and it will respond to the treatment. My experience is practical ; my land has been planted with corn ever since I can remember—Wheat, Barley, and Beans, one after the other, and I never heard my father say other, and that with farmyard manure, the most lasting food for farm crops. Artificial manures may answer, but from my observations at least, not on my land. My neighbour, some years ago, had a great fondness for it instead of the genuine article, and had some sown across a piece of freshly-sown Barley, and it took such an effect upon it, that one could not see any difference between the dressed and the other part of the field. Another gentleman gave me his experience, which was similar. I have an artificial loaf, which looks very nice and real, but it is of no use ; and artificial flowers are showy, but they want a little of Rimmell's scent to them, and what are they as compared with real flowers ? I know there are manures offered for every crop that is grown, but I believe the best results are found in the pockets of those that sell them. For how many crops will one dose of these mixtures last ? does it benefit one or many ? I use the same thing out of my farmyard, solid or liquid, for any kind of crop. I dilute the liquid if I think it is too strong for plants in pots ; but for the arable field or on grass-land I use it just as it is, and very effective manure it is, soon changing the look of the crops. I give it to all kinds of plants that I grow, if I think they require a little assistance. Not being a novice in plant cultivation, I apply manure to exotics or any kind of plants, and if my land will produce good crops year after year that of others will do the same. I was interested in the remarks on manure in the *Gardeners' Chronicle* some time since, and I have taken the liberty to give the experience of many years in manuring, which I am fully satisfied with. My land has produced more than seven quarters of Wheat, and seven of Barley after Wheat, to the acre, which is not a bad result for hard work and good cultivation. *J. C.*

PELORIATE DENDROBIUM.

From the gardens, Mill House, Halifax, we have received a very interesting specimen of Dendrobium fimbriatum, in which the two lateral sepals had assumed the same form and coloration as the lip. The flower (fig. 111), therefore, has three lips, and affords an instance of irregular peloria. The column is erect.

We are informed by Mr. J. A. Woods, the gardener at Mill House, that the growth which carried the flowers was 6¼ feet in length, that the flower-spike had three branches, and that all of the flowers with the exception of three were similarly malformed.

In the case of peloriate flowers of Orchids it is usually the lateral petals which take on, more or less, the form and coloration of the lip, but in a variety of Dendrobium nobile, lately figured, the two lower sepals had become lip-like.

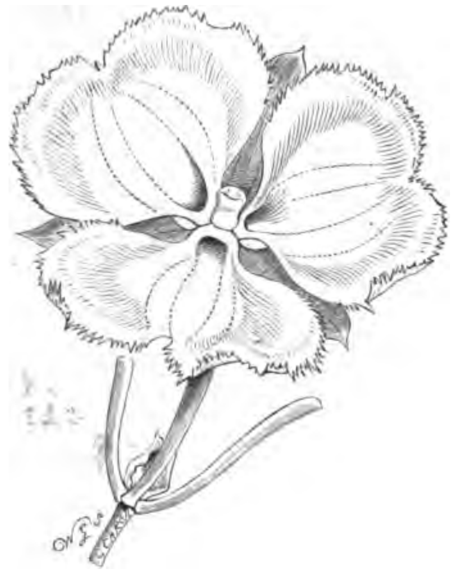

Fig. 111.—Peloria of Dendrobium fimbriatum: flowers yellow.

BELGIUM.

F. SANDER & CO.'S NURSERY, BRUGES.

In our issue for May 14 last year, p. 290, we published a brief account of this wonderful newly-founded nursery at St. Andrée, just outside one of the old gates of Bruges. We mentioned the huge blocks of contiguous houses, some with party walls, and some without any, that were filled to their utmost capacity with Palms, Dracænas, Azaleas, and Orchids chiefly. Much of the stock of plants then existing in the houses have gone to fill the insatiable demand for plants all over the Continent and in America, and yet the houses are as well filled as then. Roughly speaking, Azalea indica are arranged at the present time in the contiguous houses of which mention is made, covering 5 acres of land, cheaply built, light and commodious, with just the requisite heating apparatus, but without any superfluities. Presently the entire stock of Azaleas will be planted out in narrow beds, with brick kerbing, with 2 feet alleys between, filled with the renowned Belgian leaf-mould. As but comparatively few Azaleas are cultivated in pots in the Belgian nurseries, either under glass, or when growing in the open ground, the labour of transferring this immense number of plants is greatly facilitated. The trade in Azaleas is but in its commencement, and new houses for harbouring great numbers are being constructed. Messrs. Sander are not satisfied with cultivating varieties raised by others, but they go largely into the business of raising new ones, and consider themselves extremely fortunate if one in 5000 turns out to be a better thing than any existing variety. It is needless to say, that, all that do not reach this standard are consigned to the rubbish-heap as soon as they have bloomed.

The Palms, which in importance equal the Azaleas, occupy glasshouses covering, at the lowest computation, 1½ acre of land, and they are mostly contiguous with some overhead hot-water pipes, as a means of equalising the temperature ; and, as a whole, they are remarkable for handsome development, abundance of roots, and healthy-looking, handsome leaves. A sickly plant must be a great rarity, and we did not observe one in any of the houses. The plants are plunged in tan-beds in most cases, the smaller in the side beds, and the taller in the central bed, for almost every house is provided with three beds, the middle one being sometimes 12 feet wide. Latanias were in strong force, also Cocos Weddelliana, and Kentias of species. Of the more rare species mention should be made of Livistona rotundifolia, of which there is a great stock of plants, a handsome Palm for table work, Ceroxylon niveum from Columbia, an importation of Mr. W. Bull some years ago, and now obtainable as seed in quantity, a fine species ; Licuala grandis, many fine plants ; Martinisia, with broad handsome leaves and leaflets—new ; a species of Kentia that throws up numerous stems from the root, and has brown-tinted heart-leaf, is a fine Palm ; Kentia Belmoreana Mooreana, has brown ribs and stems, and is valuable for variety ; and of Caryota majestica a fine lot of plants was observed, chiefly young stuff, growing in a house apart. Other species, of which considerable quantities exist, are Chamærops excelsa, French-grown plants, strong, and good ; Phœnix reclinata, P. canariensis, also of the same origin, a most useful Palm that is much in request on the Continent, and of which a houseful of specimens 5 to 6 feet in height, bushy, and vigorous, was seen ; Cocos flexuosa, about as equally popular a species ; Demænorops species, and others.

A houseful of Dracæna stricta plants of a regular height of 2 feet, and perfect in form and leafage, was remarked, as well as a splendid lot of Pandanus Veitchi, another popular plant. Of Dracæna Sanderiana and D. Godseffiana, there were noted great numbers of compactly-grown smallish plants. Anthuriums are cultivated in considerable numbers, and hybridising is constantly going on. A pink-coloured variety of A. Scherzerianum with a double spathe was observed, which has shown this feature constantly for two seasons, will be increased. Orchids are constantly being received in immense numbers from their native countries, some in large masses of 3 feet in diameter, and also as quite small plants, and so generally rapid is the transit in these days, that it is rarely that many are dead or past recovery on arrival. Odontoglossums form the greater proportion of the stock, and an extensive trade is done in cut blooms of this genus. Some of the finest O. crispum in the possession of the firm are probably unmatched, the natural hybrids being of special beauty. Of other species there were fine forms visible, and mention should be made of a natural hybrid of O. cirrosum, which is said to be the finest that a collector has ever discovered in regard to the size, form, and markings of the flower. It will doubtless arouse much admiration when it is brought over to the next Temple Show. Beautiful varieties of O. triumphans and of O. Halli were noted. A very beautiful natural hybrid of O. Halli and O. luteo-purpureum, lip white with a semicircular line at the base ; sepals and petals dark brown, and the width of the flower about 5 inches, was pointed out to us.

Of Cattleyas in species, thousands can be seen in all stages, including a quantity of C. Harrisoni. Thousands of plants of Cattleya labiata, newly imported, were spread out on benches in the houses. Lælia anceps were very numerous, and we cannot remember to have observed stronger or healthier specimens of L. purpurata.

It was remarkable to observe how the Orchids formed a net-work of the healthiest roots in the leaf-mould of the country, sphagnum-moss being only employed as a top-dressing, and as a means of judging the condition of the whole mass in reference to moisture. A fine stock of Sweet Bays as pyramids and standards were noted in all stages of development, from the rooted cutting up to the perfect saleable specimen, and growing in the open ground and in tubs and pots.

As showing the manner in which every available space is turned to use in this remarkable nursery, beds for the germination of Palm-seeds occupy the spaces under the stages and lateral brick-pits in all the houses in which Palms are grown, as well as in many others.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

Present: Dr. M. T. Masters (in the chair); Prof. Church, Mr. Sutton, Rev. W. Wilks, Rev. Prof. G. Henslow (hon. sec.).

Cattleya Malformed.—Dr. Masters exhibited a blossom having only one petal, one sepal, and a straight column. This reduction to a symmetry of "two" is not uncommon in Orchids.

Parasitic Fungi.—Some interesting communications, with specimens of Polyporus ulmarius, showing how it appears to cause the decay of the interior of the tree, and fructifies in the hollow, were sent by Dr. Plowright; also descriptions of parasitic fungi on Alders and Willows. Figures of these will appear in the *Gardeners' Chronicle* shortly. A vote of thanks was given to Dr. Plowright for his communication.

BRISTOL & DISTRICT GARDENERS'.

At the annual meeting held recently at St. John's Parish Room, Redland, Mr. W. A. Garaway, who presided, stated that the Society, though started only a year ago, now numbers over 100 members. Meetings are held, and lectures given on subjects of interest to horticulturists, the average attendance being seventy. Mr. H. Cary Batten was again elected President.

WARGRAVE AND DISTRICT GARDENERS'.

May 3.—On the above date, Professor Groves, F.L.S., gave a lecture on "Mosses," tracing the similarities and differences between them and Ferns in a very clear manner.

The way in which the moss-plant produces spores for reproduction, and the quick growth of the plant, by which large patches of land are covered in a short time, were carefully explained. The reasons why moss is always found in damp places were pointed out; and the diagrams explanatory of the lecture were most useful.

Mr. T. Haskett, gr. to J. W. Rhodes, Esq., Hennerton, exhibited some beautiful Rhododendrons, which were much admired.

NATIONAL AURICULA.

(Northern Section.)

May 5.—The annual exhibition was held on the above date in the Coal Exchange, Manchester. Notwithstanding the lament of our old friend Mr. D'Ombrain, that "the popularity of the Auricula is on the wane," there can be no doubt the Auricula has still many enthusiastic votaries in the North, who love the flower well enough to give it all the attention so essential to its well doing.

On this occasion the quality of the flowers was of a high order of merit, bearing in mind the very treacherous season that has been experienced. As old Ben Simonite remarked, "they had every reason to congratulate themselves, both on the quality and quantity of the exhibits." General regret was expressed at the absence, through indisposition, of the Rev. F. D. Horner, whose plants are always an interesting feature of the show. Over 600 plants were staged, and the principal prize-winners were Mr. T. Lord, Todmorden; Mr. B. Simonite, Sheffield; and Mr. A. R Brown, Birmingham.

New exhibition varieties were exhibited by Messrs. Lord and Simonite, Mr. Simonite showing a very fine, new, green-edged variety of great promise.

New alpines were shown by Messrs. R. Gorton, Eccles; and R. Holding, Birmingham.

The best six Auriculas, dissimilar, were from Mr. T. Lord, Todmorden, who showed Geo. Lightbody, Acme, F. D. Horner, R. Headley, Mrs. Potts, and Abram Barker—a fine lot; 2nd, Mr. Ben Simonite, Sheffield.

or four Auriculas, dissimilar, Mr. T. Lord was again 1st, and Miss Woodhead 2nd.

The best collection of six Alpines (six dissimilar), was that from Mr. A. R. Brown, Birmingham; and for four Alpines (distinct), those of Mr. J. Beswick.

The premier Auricula was Mr. T. Lord's Abram Barker (First-class Certificate); and the premier Alpine, Mr. A. R. Brown's J. F. Kew.

Mr. Frank Law, of Sale, exhibited a fine collection of Narcissus.

Obituary.

Malcolm Dunn, V.M.H.—Just before going to press we are shocked by the news of the death after twenty-four hours acute illness, of our valued contributor, Mr. Dunn, head gardener to the Duke of Buccleuch, Dalkeith Palace, since 1871. We are unable, for the moment, to write more than an announcement of this sad event, but in our next issue we hope to give some particulars of the life and work of this excellent gardener, who for many years has been the best known of Scottish horticulturists. His extreme willingness to assist every deserving cause was most remarkable.

T. A. Dickson.—It is with deep regret we learn of the decease of Mr. T. A. Dickson, head of the firm of T. A. Dickson & Co., florists, Centre Row, Covent Garden. Mr. Dickson was taken ill in August of last year, and subsequently had a paralytic stroke, which, together with general weakness and debility, prevented him from again resuming the active part he had taken in the management of the business, and he passed peacefully away on Tuesday, the 9th inst., in his sixty-fifth year.

The firm of Dickson has been associated with Covent Garden Market for almost a century, and fifty years ago deceased's father had a stand in the market, and a nursery at Brixton. The site of the nursery has long since been built upon, and changes almost as great have taken place in the firm's position in the market. From the "stand" that used to be erected opposite the church, which had to be cleared away every Saturday evening, Messrs. Dickson moved to a position in the Centre Row, and later to the shop nearest to the church, which they at present possess. The business is now purely that of a florist's, and a number of young persons are employed continually in the making up of bouquets and other floral devices. A considerable trade is done in moderate-sized plants of a decorative character, and a group of the flowering plants in season could always be seen outside of the shop. A brother of deceased was, at one time, superintendent of the market previously to Mr. Assbee.

Mr. T. A. Dickson had been employed in the market from his youth. His wife, who was also engaged in the business, pre-deceased him, and he leaves one son. The business, we are informed, will be carried on, as usual, and under the same name, by Mr. F. S. Lucy, a nephew of the deceased gentleman.

Deceased was greatly respected by all frequenters to the market, and his unobtrusive and kindly personality will be much missed. He at one time was a member of the Board of Works, and was also much interested in the Covent Garden Lodge of Freemasons, and in various horticultural charities. For ourselves, we have been indebted to him for valuable information respecting market prices from week to week. The funeral will take place at Norwood Cemetery on Saturday, at 12 noon.

The late MALCOLM DUNN, V.M.H.

THE PANSY.

Its Names and Its Evolution.—Though the Pansy is deservedly admired at the present day, it is open to question if we now regard it with the same affection as did our forefathers. The names they have left us—some thirty in number—are, for the most part, indicative of a deep-rooted sentiment. To explain some of these names, much ingenuity has been exercised during the last hundred and fifty years. Dr. Johnson provides an instance of an extreme nature. In his *Dictionary*, Pansy is explained as a corruption of Panacey (Opopanax); while in his edition of *Shakespeare*, he declares the word "is for thoughts, because of its name Pensées." In this case we may perhaps question the great lexicographer's ingenuity, but not his learning. It is perhaps not so well known that Pansy was at one time a designation applied not to the whole plant, but to the flowers only. In a description of the plant, Dodoens says:—"The French call the flowers 'pensées.'" The Belgians and the people of Brabant employed the word in the same sense. Pansy as a name was not in common use until the present century was well advanced;

it appears sometimes as the Garden Violet, but more commonly as Heartsease. So late as 1840, long lists of varieties, as well as cultural remarks, were published under this title. Sometimes Heartsease alone was employed, though very frequently "or Pansies" was added—as, for example, in Carter's Catalogue for 1844.

"Love-in-Idleness" has been long obsolete. The experience of Lucentio points to a belief that the flower was as potent as a love-philtre in producing the "grand" passion. Shakespeare calls it also "Cupid's Flower." It is mentioned in the same sense by Spenser, and Milton names the Pansy as one of the flowers that formed the couch of the first happy pair. "Cuddle me to you," and many other expressive names bespeak affection. "Flamy" carries us back to the time when Viola flammea was recognised as one of its botanical appellations. Phillip's *World of Words* (1720) has "Flammula, Herb Trinity, or Heartsease." A century later another Phillips says it received the name of "Flamy, because its colours are seen in the flame of wood" (!).

Banwort or Bonewort appears in *The Plant Lore* of Shakspeare as a name of the Pansy and Daisy. Banwyrt in one of Douglas' Prologues is Ranunculus bulbosus, which Markham declares is "venimous for the beast." The Banewort of Lyte's *Herbal* is "Speerwort, or Ranunculus Flammula," which is there said to kill sheep. Yet another Banwort is Atropa Belladonna.

The Pansy found a place in medicine, and was employed to "conglutinate blood" for falling sickness and some other illnesses. In cookery it found no place, but both on the continent and in England it was an early introduction to the "Garden of Pleasure." So little, however, has been said of its qualities by old writers, that we may skip those previous to Miller. He states there were many varieties which differ greatly in the size and colour of their flowers. Some of the varieties have very large, beautiful flowers, which have an agreeable odour; others have small flowers, without scent." And, again, "Some of the varieties have the flowers much larger, and others of the size of March Violets; some of them have the two upper petals of a deep yellow colour, with a purple spot in each, the two middle of a paler colour, with a deep yellow spot, and the lower petal of a velvet colour; in others the petals are white with yellow and purple spots; in some the yellow is the most prevailing colour, and in others the purple." The "spots" above mentioned are doubtless blotches, as later growers called them. Miller, and other cultivators, down to about the year 1825, appear to have raised plants solely from seed, though we may note the mention of Pansies of two distinct shades of blue, which occur in a sensibly-written little book called the *Florist's Manual*, by Miss Jackson, in 1827. This lady employed these Pansies for massing in flower-beds. That keen florist, Hogg, of Paddington, does not mention the Pansy in the first edition (1821) of *A Treatise on Florist's Flowers*. In 1822, second edition, "Heartsease" occurs in a list of hardy plants; and in 1833, when a 208-page supplement of the above-named work was published, about seventy varieties are enumerated. In that year, in an article on the cultivation of Pansies, Harrison, then of Wortley, assures his readers that about 200 varieties were cultivated. Blooms grown to the largest possible size measured 2¼ inches deep by 2 inches across the upper petals. The colouring of many of the flowers about this time was most beautiful. One possessed upper petals of a deep violet, with the lower and side-petals yellow, and splashed on the edges with dark green. Another, in form exactly like a Viola, had a lemon ground colour, with a narrow edge of the faintest blue round all the petals. The upper petals of another variety were dark plum-coloured, the whole of the others cream, belted with peacock-green, and below the eye a blotch of dark orange. One of the prettiest appeared in 1840. This variety had a white ground with a rough belting of lavender, upper petals of the same shade, but faintly edged with light-blue; dark blotches cut off the yellow eye from the white ground. From this date the flowers more and more nearly approached the "properties" of the florist. These Show Pansies were long favourite flowers among the humbler class of florists, one of whom, I remember, on account of his proclivities, having received the sobriquet of "Pansy Will." About 1860, John Downie introduced the Fancy Pansy from Belgium. Its progress was much slower than that of the Show Pansy, because many growers would have nothing to do with it. So late indeed as 1873, a writer in *The Gardener* mentions the variety "John Downie" as approaching very nearly the qualities expected in high-class blooms. In another ten years "Fancies" had become first favourites, a position they have maintained not only on account of their greater beauty, but also because of their stronger and more floriferous habit. Fancy Pansies are obtained fairly true from seed, and for ordinary purposes it is perhaps the best method of propagation. Sown in a little heat in the month of February, very strong plants are produced for flowering in late summer and autumn. *R. P. Brotherston.*

MARKETS.

COVENT GARDEN, MAY 11.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Cut Flowers, &c.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Anemones, dozen bunches	1 6- 2 0	Marguerites, p. doz. bunches	3 0- 4 0
Arum Lilies, dozen blooms	2 0- 4 0	Maidenhair Fern, per doz. bunches	6 0- 9 0
Asparagus "Fern," bunch	2 0- 3 0	Mignonette, per dozen bunches	2 0- 3 0
Azalea, white, 12 bunches	3 0- 4 0	Narcissus, White, dozen bunches	1 6- 2 0
Azalea mollis, per dozen bunches	6 0- 9 0	Orchids, per dozen blooms	6 0-12 0
Bouvardias, per bun.	0 4- 0 6	Pelargoniums, doz. bunches	4 0- 6 0
Camellias, per doz. blooms	1 6- 2 0	— scarlet, per doz. bunches	6 0- 8 0
Carnations, per doz. blooms	1 6- 3 0	Roses (indoor), per dozen	1 6- 2 0
Daffodils, per dozen bunches	2 6- 4 0	— Pink, per dozen	4 0- 6 0
Eucharis, per dozen	2 0- 3 0	— Tea, white, per dozen	2 0- 3 0
Gardenias, per doz.	1 0- 3 0	— Perle, per doz.	1 0- 2 0
Hyacinths, Roman, per doz. bunches	4 0- 6 0	— Safrano, p. doz.	1 6- 2 0
Jonquils, per dozen bunches	1 0- 2 0	Smilax, per bunch	3 0- 5 0
Lilium longiflorum, per dozen	4 0- 6 0	Tuberoses, 12 blms.	0 8- 1 0
Lily of the Valley, dozen bunches	6 0-10 0	Tulips, per dozen	0 6- 1 3
		Violets, per dozen bunches	0 6- 1 6
		— Parma, bunch	2 0- 2 6

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Arbor Vitæ, p. doz.	12 0-36 0	Ferns, small, per 100	4 0- 6 0
Aspidistras, p. doz.	18 0-36 0	Ficus elastica, each	1 0- 5 0
— specimen, each	5 0-10 0	Foliage plants, var., each	1 0- 5 0
Dracænas, various, per doz.	12 0-30 0	Lycopodiums, doz.	3 0- 4 0
— viridis, p. doz.	9 0-18 0	Marguerite Daisy, per dozen	6 0- 8 0
Euonymus, various, per dozen	6 0-18 0	Myrtles, per doz.	6 0- 9 0
Evergreens, in var., per dozen	6 0-24 0	Palms, various, ea.	1 0-15 0
Ferns, in variety, per dozen	4 0-12 0	— specimens, ea.	21 0-63 0
		Zonals, per dozen	6 0- 8 0

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian and Victorian, Ribstons, Pearmains, New York Pippin, Sturmer, Prince Bismarck, &c., per case	12 0-15 6	Grapes, Belgian A., per lb., new	1 3- 1 9
Apricots, box of 24	1 0- 1 3	— English, Hambros, per lb.	2 6- 3 0
Bananas, per bunch	8 0-10 0	— Muscats p. lb.	5 0- 7 0
Cherries, sieve	10 6 —	Lemons, per case	6 0-10 0
— — box	1 6 —	Lychees, Chinese, packet, 1 lb.	1 3- 1 4
Cranberries, American, box	11 0 —	Melons, each	1 3- 1 9
— Russian, kegs	1 6 —	Oranges, Jaffa, cases	15 0 —
Figs, per dozen	4 0- 8 0	— Murcia, cases of 150 or 200	7 6- 9 6
Gooseberries, quart	0 10-1 0	— Blood	7 6- 9 6
— French package 6 lbs.	3 6 —	Peaches, per dozen	9 0-30 0
		Pears, Australian, cases	2 0- 6 0
		Pines, St. Michaels, each	3 0- 6 0
		Strawberries, p. lb.	2 6- 3 0
		— Seconds	1 0- 1 6

Vegetables.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0- 2 6	Mint, forced and natural, per dozen bunches, according to size of bunches	2 0- 6 0
— Jerusalem, per sieve	1 6- 2 0	Onions, Egyptian, cwt. bag	4 6- 5 0
Asparagus, Giant, per bundle	6 0-10 0	— New, bunches.	2 0- 2 6
— Toulouse	1 3- 1 6	— picklers, sieve	2 6 —
— Barcelona	1 0 —	Parsley, doz. bun.	2 0 —
— Spanish, bund.	10-1 0	— sieve	1 0 —
— Sprue	0 6 —	Peas, Channel Islands, in handled baskets, lb.	0 7- 0 8
— Cahore, bundle	0 7 —	— Frame Telephone, lb.	0 8-0 10
— Eng., natural, per bundle	2 0- 4 6	— French flats	4 0 —
— Various others	0 9- 1 0	Potatos, Bruce, Saxon, Up-to-Date, &c., per ton	80 0-105 0
Beans, Dwfs., Channel Islands, lb.	0 6- 0 8	— New Jersey Kidneys, per cwt.	30 0-32 0
— — English, lb.	0 6- 0 8	— — Frame, per lb.	0 3½ —
— — Longpods, in flats	3 0 —	— — Teneriffe, per cwt.	14 0-16 0
Beetroots, per doz.	0 6- 0 9	— Lisbon, per box	4 6- 5 0
— bushel	2 0- 2 6	Radishes, Round, breakfast, per dozen bunches	1 0- 1 6
Broccoli, dozen	1 0- 2 6	— Long, per doz. bunches	0 9-0 10
— crates	6 0-12 0	Rhubarb natural, per dozen	2 0- 2 6
Cabbage, tally	4 0- 5 0	— York, per doz. bundles	0 9- 1 3
— Coleworts, per bushel	2 0 —	Salad, small, punnets, per dozen	1 3 —
— dozen	0 9- 1 0	Seakale, natural, p. doz. punnets	8 0-10 0
Carrots, new French, per bunch	0 6 —	Spinach, English, per bushel	2 0- 2 6
— washed, in bags	4 0 —	Tomatos, new English, per lb.	0 9-0 10
— Surrey, bunches, doz.	2 6 —	— Guernsey, p. lb.	0 7- 0 8
Celery, Red, dozen bundles	6 0 —	— Canary, boxes	2 6- 4 0
Cress, doz. punnets	1 6 —	Turnips, New French, per bunch	0 6- 0 9
Cucumbers, per doz.	2 0- 3 0	Watercress, p. doz. bunches	0 6 —
Endive, French, per dozen	1 6- 2 0		
Garlic, per lb.	0 3 —		
Horseradish, New English, bundle	2 0 2 6		
— — loose per doz., fine	1 6 —		
— Foreign, per bundle	1 0 —		
Leeks, per dozen bunches	2 0 —		
Lettuce, Cos, dozen	3 6- 4 0		
— Cabbage, dozen	1 6- 2 0		
Mushrooms, house, per lb.	0 8- 0 9		

Potatos.

Bruce, Saxon, and Main Crop, 80s. to 100s.; Up-to-Date, 100s. to 105s.; Dunbar Main Crop, 105s. to 110s. *John Bath, 32 and 34, Wellington Street, Covent Garden.*

Remarks.—Jersey new Potatos are now coming in, but there is only a light supply at present. Gooseberries are not very plentiful at present. Foreign Cherries and Apricots are yet of medium quality. There is much variety in Asparagus, home-grown samples are not large. Some of the Australian Pears are very poor. Home-grown Radishes are good.

SEEDS.

London: *May* 10.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that, although the spring Clover-seed season is now about over, a few sowing orders still drop in, which are executed at the low rates current. There is no change in Tares. Full prices are asked for Mustard and Rapeseed. Hemp-seed, on account of its real scarcity, and some resultant speculation therein, is again dearer. For Canary-seed, there is also an improved feeling. The late strong rise in Butter Beans, has hardened values of White Runners. Peas, Haricots, and Lentils also tend upwards. The Linseed market is steady.

FRUIT AND VEGETABLES.

Glasgow: *May* 10.—The following are the averages of the prices recorded since our last report:—Apples, Canadian Spies, 14*s.* to 18*s.* per barrel; Boston States Russets, 18*s.* to 20*s.* do.; Oranges, 4*d.* to 8*d.* per dozen; Tomatos, Guernsey, 4*d.* to 8*d.* per lb.; do., Scotch, 6*d.* to 8*d.* do.; Grapes, home, 2*s.* to 4*s.* 6*d.* per lb.; do. foreign, 6*d.* do.; Spring Cabbages, 10*d.* to 1*s.* per dozen; Broccoli, Edinburgh, 2*s.* to 2*s.* 6*d.* per dozen; Herbs, assorted, 1*d.* to 2*d.* per bunch; Leeks, 1*s.* 6*d.* to 3*s.* 6*d.* per dozen bunches; Mint, green, 6*d.* per bunch; Onions, 4*s.* to 5*s.* per cwt.; Parsley, 3*s.* to 4*s.* per stone; Carrots, new, round, 1*s.* per bunch; do., 5*s.* to 7*s.* per cwt.; Cucumbers, 4*d.* to 6*d.* each; Lettuces, round, 1*s.* 6*d.* per dozen; Radishes, English, long, 1*s.* 6*d.* per dozen bunches; Horseradish, 1*s.* 9*d.* to 2*s.* per bundle; Radishes, round, 6*d.* to 9*d.* per dozen bunches; Mushrooms, 1*s.* to 1*s.* 2*d.* per lb.; Beetroots, 6*d.* to 7*d.* per dozen; Mustard and Cress, 3*d.* per punnet; Spinach, 4*s.* to 6*s.* per stone; Rhubarb, 14*s.* to 16*s.* per cwt.; Turnips, new French white, 1*s.* to 1*s.* 3*d.* per bunch; Swedes, 2*s.* to 2*s.* 6*d.* per bag; Broccoli, Irish, 2*s.* to 2*s.* 6*d.* per dozen; Greens, 5*s.* to 6*s.* for ten dozen; Seakale, 1*s.* to 1*s.* 6*d.* per bunch.

Liverpool: *May* 10. — *Wholesale Vegetable Market.* — *St. John's.*—Potatos, 1*s.* per peck, Peas, 6*d.* per pound; Cucumbers, 4*d.* to 6*d.* each; Grapes, home, 3*s.* to 4*s.* per pound; Pines, English, 4*s.* to 6*s.* each; Mushrooms, 1*s.* 4*d.* per pound. *Birkenhead.*—Potatos, 1*s.* to 1*s.* 4*d.* per peck; do., new, 2*d.* to 5*d.* per pound; Peas, 6*d.* do.; Asparagus, 2*s.* to 3*s.* per 100; Cucumbers, 2*d.* to 6*d.* each; Strawberries, 4*s.* per pound; Cherries, 8*d.* do.; Grapes, English, 1*s.* 6*d.* to 3*s.* 6*d.* do.; Mushrooms, 1*s.* to 1*s.* 6*d.* do.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending May 6, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return :—

Description.	1898.		1899.		Difference.	
	s.	d.	s.	d.	s.	d.
Wheat	42	4	25	3	– 17	1
Barley	27	8	24	5	– 3	3
Oats	20	4	17	6	– 2	10

THE WEATHER.

[The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named ; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.					Rainfall.			Bright Sun.	
	Above (+) or below (–) the Mean for the week ending May 6.	Accumulated.				More (+) or less (–) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.					
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	4 –	25	33	– 1	– 6	4 –	83	18·2	54	28
1	6 –	20	33	– 18	+ 9	1 –	78	11·9	39	30
2	4 –	26	14	+ 94	– 90	2 +	60	7·8	38	28
3	4 –	36	13	+ 112	– 181	4 –	65	7·1	57	37
4	3 –	45	15	+ 91	– 135	3 –	64	9·3	48	34
5	2 –	45	2	+ 139	– 179	4 –	58	8·8	54	38
6	4 –	37	17	+ 15	– 46	0 aver	79	18·5	54	29
7	3 –	38	10	+ 106	– 185	2 –	74	12·4	58	33
8	1 –	45	0	+ 125	– 117	5 –	71	16·1	53	37
9	1 –	43	7	+ 40	– 64	3 –	87	13·3	51	32
10	0 aver	53	0	+ 115	– 50	5 –	73	16·2	53	35
*	0 aver	63	0	+ 266	– 67	4 –	68	10·9	57	42

The districts indicated by number in the first column are the following :—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E. ; 2, England, N.E. ; 3, England, E. ; 4, Midland Counties ; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W. ; 7, England, N.W. ; 8, England, S.W. ; 9, Ireland, N. ; 10, Ireland, S. ; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending May 6, is furnished from the Meteorological Office :—

"The *weather* was rather unsettled at the commencement of the week, with occasional rain at most of our more northern and north-western stations. After Tuesday, however, very dry conditions, with fine bright days and cold nights, set in over the whole Kingdom, and continued throughout the rest of the period.

"The *temperature* was just equal to the mean in 'Ireland, S.' and the 'Channel Islands,' but below it elsewhere, the deficit ranging from 1° in 'England, S.W.' and 'Ireland, N.,' to 4° in 'England, N.E. and E.,' and 'Scotland, N. and W.,' and to as much as 6° in 'Scotland, E.' The highest of the maxima were registered either during the middle or end of the period, and ranged from 67° in 'England, S.,' 66° in 'England, S.W.,' and 64° in Ireland, to 57° in 'England, N.W.,' and to 52° in 'England, N.E.' The absolute minima, which occurred during the latter half of the week, were very low for the time of year. In 'Scotland, N. and E.' the thermometer in the screen fell to 25°, in 'Scotland, W.' to 27°, and in 'England, N.E.' and the 'Midland Counties' to 28°, while elsewhere the minima varied from 29° in 'England, E.,' to 33° in 'England, S.,' and to 43° in the 'Channel Islands.' The diurnal range was, therefore, large, and sharp ground-frost prevailed almost nightly, the lowest grass readings reported being 22° at Fort William, and 23° at Ochtertyre and Loughborough.

"The *rainfall* exceeded the mean in 'England, N.E.,' and just equalled it in 'Scotland, W.,' but was much less than the normal elsewhere. Over the southern half of the Kingdom [illegible] was hardly appreciable, and many stations were [illegible]hout rain.

"The *bright sunshine* was in excess in all districts. The percentage of the possible amount of duration ranged from 58 in 'England, N.W.,' and 57 in 'England, E.' and the 'Channel Islands,' to 39 in 'Scotland, E.,' and 38 in 'England, N.E.'

Answers to Correspondents

Carnations Diseased : *A. P. F.* The mouldy dirty appearance of the foliage, and the rotten stems, are due to fungi. The plants are being kept too damp. Useful hints on treatment of Carnations will be found in a recent report to the Royal Horticultural Society, Scientific Committee, see *Gardeners' Chronicle*, April 29, p. 270. The disease on your plants is not clearly bacteriosis, yet the fungus present is greatly favoured by excessive moisture. To check the fungus use some fungicide, for example, potassium sulphide at rate of ¾ ounce to each gallon of water ; apply as a fine spray above and below the foliage at intervals of two or three weeks.

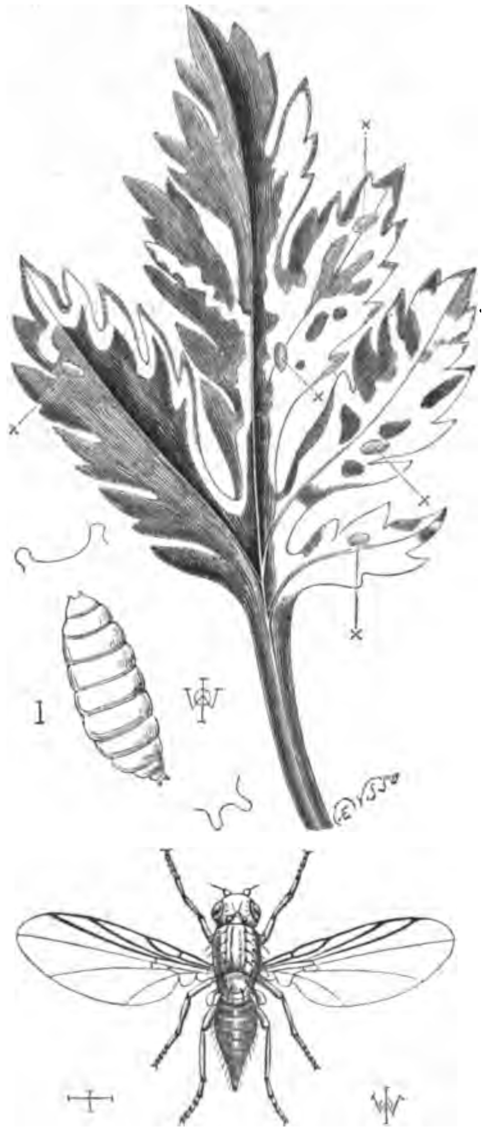

Fig. 113.—The Marguerite Leaf-miner (Phytomyza nigricornis).
[The instances of maggots in the above leaf are indicated by a ×.]

Cucumbers turning Yellow at the Tip : *A. C.* This may be due to several causes, viz., to lack of top or of bottom heat, to disease of fungoid nature, or to eelworms at the root, these being introduced with the soil. Please send some fruits, roots, foliage, &c., for our inspection.

Cytisus scoparius Sport : *E. S.* The plants sent, that have come up in a bed of Cytisus scoparius are identical with C. s. Andreanus.

Dendrobium Jenkinsii : *Veritas.* Dendrobium Jenkinsii usually flowers from the last-matured pseudo-bulbs, although any of the older bulbs may produce flowers from the unflowered nodes.

Fish Manure : *R. B.* Yes ; use in the proportion of one part manure to sixteen parts compost.

Fruit by the "S.S. Omrah" from Tasmania : *J. Barnard, Bowes Park.* The vessel was expected in the river on Thursday last, *i.e.*, a day and half before the advertised time. The major part of the cargo will go to Covent Garden, and be there disposed of by auction. It is usual for samples of the fruit brought over from Australian ports to London to be exposed at a few shops in Monument Yard one day before sale takes place, and announcements of sales are made in the same quarter.

Insects : *Windsor.* The beetles are Aphodius fossor ; very common at times in cow-dung and manure. Not in any way injurious, that we are aware of.—*B. L. H.* In respect to the woodlice, you must catch them. Hollowed pieces of Potato, Turnip, &c., turned with hollowed side downwards, make very good traps ; and if looked at occasionally, and those insects found secreted thereon plunged into boiling water, you will soon diminish their number.

Marguerite Leaves : *South Walian.* The leaves are attacked by the Marguerite Leaf-miner (Phytomyza nigricornis), see figure, which we reproduce below. The maggots of this insect eat all the fleshy portion of the leaf, leaving the two surfaces entire. It will be best to remove every badly-infested leaf from the plants, and burn them. Go over the plants occasionally afterwards, and by examining leaves still affected, the maggots can be detected, and squeezed between the thumb and finger.

Melon Leaves Diseased : *Constant Reader* and *F. L.* This is an "anthracnose," due to a fungus. Melons and allied plants are attacked by various fungi which produce spotting of the leaves. The same is the case abroad, and much attention has been given to diseases of this kind in America, where they are very prevalent. A good remedy has yet to be found. The kind of fungus present indicates too much moisture and lack of air ; the plants would be stronger and the fungus checked if this were adjusted better. With regard to spraying, the best we can do is to quote an American of much experience. He says, "Cucumbers, &c., may be treated with fungicides for anthracnose and mildew with reasonable hope of success. Bordeaux Mixture was the best substance employed in my experiments, it not only increased the yield, but prevented rotting of the fruit."

Names of Plants : *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*B. A. C.* 1, Dendrobium pulchellum ; 2, Cypripedium Lawrenceanum ; 3, Adiantum hispidulum tenellum ; 4, Selaginella viticulosa ; 5, Berberis stenophylla ; 6, Kerria japonica flore pleno.—*S. G. S.* Begonia incarnata maculosa ; 2, Selaginella viticulosa ; 3, Adiantum cuneatum mundulum ; 4, Pitcairnea angustifolia ; 5, Cissus discolor ; 6, Begonia nitida, probably, send when in flower.—*F. M.* Oncidium luridum ; 2, Oncidium altissimum ; 3, Oncidium sphacelatum.—*M. G.* 1, known in gardens as Chlorophytum Sternbergianum ; 2, Tracheleospermum jasminoides ; 3, Centaurea ragusina ; 4, probably Libonia penrhosiense, send when in flower.—*R. E. C.* Ornithogalum nutans, and may be found wild in many places.—*F. G. S.* Vitis antarctica, known in some gardens as Cissus antarctica.—*E. S., Durham.* Asclepias curassavica.—*W. T.* Your Odontoglossum is a pretty form of the pink-tinted O. Andersonianum known as O. Ruckerianum. It is not a true O. crispum, but a natural hybrid of it and O. gloriosum.—*F. C.* Too scrappy to be named with certainty.—*G. H.* 1, Anemone hortensis var. stellata ; 2, Exacum affine ; 3, next week.

Communications Received.—Lyle (with thanks).—P. C. P.—S. W. (next week).—A. H. P.—G. B. M.—W. D. Roebuck.—R. C. D.—W. W.—W. H. Y.—R. E. C.—R. D.—Merrywether.—A. C.—J. R.—J. C.—J. D.—E. C.—L. S.—G. B. M.—W. G. S.—H. de Wilde.—D. T. F.—J. Bagot.—T. Simpson.—J. Milsom.—C. C. E.—H. O. E.—Anxious Reader.—H. M.—F. C.—H. T. Wood.

Specimens and Photographs Received with Thanks—Dr. A. Paterson (and wire).—Crozy aîné, à Hyères.

THE
Gardeners' Chronicle
No. 647.—*SATURDAY, MAY* 20, 1899.

AN OLD SCOTCH FLORIST.

"ABOUT the beginning of the eighteenth century the best garden in Scotland was that of J. Justice, at Crichton, near Edinburgh." So wrote Loudon; but he was scarcely correct. Because the fame of this celebrated garden was unknown till the thirties, and it was not until towards the end of his career, perhaps twenty years later, that the reputation of the garden was at its highest pitch. As in the case of Shenstone, the love of Justice for gardening was carried to such extreme lengths, that a few years previous to his death (1762) he had to dispose of his property and his collection of plants. His father was a merchant in Edinburgh, and must have been possessed of no little wealth. He, himself, was a lawyer, and held an appointment as one of the principal Clerks of Session, an office held later by Sir Walter Scott. Justice is now most generally known as the pioneer cultivator of the Pine-apple in Scotland, having in 1732 erected a pine-stove in his garden at Crichton, and there commenced its cultivation, which soon spread over the country. A plan of this structure appears in his *Scots' Gardener Director*, and it is obvious that, for the period, it was erected regardless of expense.

The above-named work was first published in 1754, and it was the intention of the author at first that it should have comprised all sections of gardening. He, however, found that it would be inconvenient to do so, and merely divided it into two parts, the first of which, "Practical Instruction in Gardening," is confined to the cultivation of fruit and vegetables, and the second, "Anthology; or a Treatise of the Culture of Flowers, and Practical Instructions given therein, being the result of Experiments in Floristry, from 1726 to 1751." The first part, though it was at one time highly esteemed, is in reality the least interesting, because one feels that much of the matter is largely subject to conjecture on the part of the author. The portion devoted to flowers, on the other hand, is very largely original, and with the lapse of years must become increasingly valuable as a record of successful floriculture in the eighteenth century.

Perhaps, next in time to *The Scots' Director*, the work entitled *The British Gardeners' Calendar*, chiefly adapted to the climate of North Britain, to which is added a Dissertation on Forest Trees, would make its appearance. It was published in 1759. *The British Gardeners' Director* was the last of Justice's effusions, and is largely an extended *Scots' Director*. It appeared in 1764.

Reverting to *The Scots' Director*, one is pleased to find it the repository of exhaustive lists of vegetables and flowers cultivated in Scotland 150 years ago. The 1721 edition of Reid's *Scots' Gardener*, as well as that of 1766, no doubt contains a limited number of flowers, in addition to those named in that of 1683. But compared with the lists in the *Director*, they are limited indeed. It is, however, not a little curious that the Potato, though mentioned by Reid, does not appear in the above. The omission seems to emphasize the early dislike exhibited by the Scots to the noble tuber, the reason for which may have been the same as that of the Puritans, viz., the absence of any mention of the esculent to be found in Scripture!

Vegetables, as detailed in an inserted copy of Patrick Drummond's *Catalogue for* 1754, were numerous and well selected; the gardener, for example, having had to select from: twenty-four sorts of Peas, twelve sorts of Lettuces, eight kinds of Kidney Beans, ten sorts of Cabbages, not including Savoys and Kales.

The "Pot-herbs" include Columbine, Virginian Tobacco, cultivated as a vulnerary; White Poppy, and Carduus Benedictus, the last esteemed as a febrifuge. Evelyn mentions how he sat covered with blankets, his legs in a "deepe churne filled with hot milk, and drinking carduus posset, then going to bed and sweating." It worked a cure!

In the lists of hardy fruits, we find in addition to many French and English Apples, such decidedly Scotch varieties as the Grey, Yellow, and Stoup Leedingtons, Fulwood, Gogar Pippin, Potteraw Apple, and the French "Orgillon," generally thought to be Scotch under the names of Oslin and Arbroath Pippin. Among Pears are Achan, Swan's Egg, Crawfurd, Golden Knapp, Carnocks, and Lemon Pear. Plums include "Hairsflaws," a name I have nowhere seen but here. We gather from the text that hardy fruits were cultivated almost entirely in "Orchyards," which Justice recommends doing away with, and instead, growing Apples, Pears, and Plums on dwarfing-stocks, as espaliers in kitchen gardens. "Currans" are recommended to be trained upon walls on north aspects; and the finer Apples—Golden Pippin, Nonpareil, and Reinette Gris—on walls for dessert.

It was, however, as a cultivator of flowers, and particularly as an expert in bulb-culture, that Justice excelled. He appears to have cultivated what in his judgment were the most beautiful of all kinds of flowering bulbs, and in order to thoroughly understand continental methods of culture, he made two voyages to Holland and Flanders, and also travelled through Italy. The result of his observations was the adoption of Dutch methods, modified to suit the climate of Scotland. Success, as he informs us, beyond that achieved by foreign growers, attended his efforts, and instead of imported bulbs dwindling in size as was usual, they increased from year to year, and produced better spikes than he had ever elsewhere seen. The soil he employed for Hyacinths was largely composed of dung, or, in his own words, of "four shares of old, well-rotted cow's dung, one share of pure white sand, and one share of peat."

In his opinion the soil near Leith was eminently suited to produce bulbs of the best quality, and he strongly advised florists to undertake their propagation and growth in that locality. The method of growing Hyacinths from offsets is fully detailed, and that of raising new varieties from seeds. The best kinds to grow for seeding are also named, which were all semi-doubles, though Hill (*Eden*, 1759) recommends a single variety called Zumbul for this purpose. Justice was fully convinced, as the results of his own observation and experiments, that new varieties could be originated in Scotland, and old varieties multiplied as successfully as in Holland, and the necessity of annually purchasing from the foreigner a supply of flowering roots of Hyacinths, Tulips, and Narcissus obviated. But it cannot be concealed that a Hyacinth in 1754, was a different flower from that of to-day. The finest spike he was ever able to produce was composed of thirty-eight bells, and he considered that number extraordinary. Varieties engraved in Hill's *Eden* had only a few bells on each, and as late as 1807 a plate by Sydenham Edwards of a group of Hyacinths, shows that the advance had been inconsiderable at that date. Raising good seedlings, it will therefore appear, was not so very difficult.

In addition to a long list of named varieties set down without remark, there is also a descriptive list of the best single and double varieties in the collections of the celebrated firms of Voorhelms and Van Zompell. Of single varieties sixty-two sorts are thus described, and of double kinds eighty-six. The finest of the former was La Reine des Femmes, which produced, at Crichton, thirty-four to thirty-eight bells, and was sold when new at 50 guilders a root, "which is a great price for a single Hyacinth." From Hermaphrodite, a semi-double variety, he "raised some very valuable double flowers." Justice entertained no doubts as to which, single or double, were best worth growing. The former were esteemed for growing in "Water-glasses," but the latter were in a particular manner the flowers of the florist. Gerard mentions both double and single sorts, and there is, therefore, good reason for thinking doubles to have been the chief sorts cultivated for the better part of three centuries. The money-value of double sorts will appear from the following quotation, while it also displays the descriptive powers of our author:—

"Konig Solomon is one of the grandest and prettiest flowers which has ever appeared amongst the Hyacinth tribes, and it may well be named King Solomon, as it may justly vie with that great Prince in the prime of all his glory. This hath a high and bold strong stem, adorned with a great Number of vast, large, strong, succulent, spicy-smelled, erect, and admirably well-reflected Bells, which attract the Eyes, and inspire Joy to the Beholder, and display a large Heart most admirably enamelled with carnation, white, yellow, and bright green Colours, it has a noble Spike, and is a late Blower; at its first appearance it was sold for 600 Gilders per Root." That is, £51 5*s.*; Gloria Mundi sold for 500 guilders, but common sorts were inexpensive.

He also cultivated a large collection of Tulips, in which "Semper Augustus" of Tulipomania fame appears. For want of time he did not attempt to raise seedling Tulips. One of his favourite flowers was Polyanthus Narcissus, among which appear among others the names of Soleil d'Or and Bazelman Major, sorts still in commerce. He notes these as being well suited for water-glass culture. Ranunculus and Anemones were planted not only in the open ground but also in pots. These were cultivated with great zest at the period under review, and Justice introduced numbers of seedlings. His collection of these and some other plants seem to have passed into the hands of Anderson & White, nurserymen, whose collection of Anemones in 1766 was said to be the finest in Britain. Fritillarias, Irises, and Liliums were also largely grown by Justice. His collection of Primroses, and in particular of the Polyanthus Primrose, was large. Of the latter he sowed the seeds in boxes of soil in June, planted out the following March, and when the plants flowered, he selected the best, and preserved them only. He remarks, "Some incomparable beauties happen often to reward the trouble of sowing and cultivating them." His collection was considered superior to any in Great Britain.

For Auriculas also, Justice was deservedly famous. The seed of Scotch Auriculas was said at this period to have been exported to Holland, and its produce imported to England. At this time the quality of the individual flowers was not so much considered as size of truss. Justice allowed two trusses to remain and develop on his blooming plants. He raised seedlings from seed sown directly it was ripened and gathered. He cultivated a few plants in the open ground, and potted them up to flower. Frames, provided with wooden shelves rising in tiers were used to exhibit the plants when in bloom, and a portion of the collection was cultivated in frames facing north.

In addition to the flowers already mentioned, other 400 sorts are more or less fully described and culturally treated. For seven years he tried to raise the double white Hepatica from seed, but failed, "although," he says, "I raised many singles and semi-doubles of various whites, flesh, and carnation colours; and will try again for it, for I am told the florists in Holland have obtained it from seeds." The double white Hepatica is one of the mysteries of floriculture, it having been recorded as existing by many old authors, while others altogether deprecate its having ever had an existence. With the Sweet William he had a more gratifying experience, for as he relates:—"In Anno 1749 I raised in my garden a plant of the whole-podded double Sweet William, of a colour finer than Fairchild's Mule. These plants put into pots in a light fresh soil, make a pretty appearance in the windows or chimnies of rooms in summer." His remarks on Carnations are very good, and these he preferred to grow in pots, because "it makes a better show to blow them in pots, and upon a proper stage, than in the open ground." From which it will appear that our author was before everything a florist. *R. P. Brotherston.*

THE BULB GARDEN.

CRINUM LATIFOLIUM.

THIS magnificent Crinum is just now in flower. It has a flattened bulb, 8 inches in diameter, and a dozen tapering, channeled leaves, each 3 feet long, and 6 inches wide at the base. The peduncle is 3 feet high, and now bears an umbel of a dozen almost sessile, fragrant flowers, each 10 inches long, and consisting of a green, curved tube, and a horizontal, cupped limb of equal length. The perianth segments vary in width from 1 to 2 inches, are recurved at the tips, and have a pale band of red on the outside, a very slight tint of this colour being suffused throughout the whole flower. The plant delights in an open, rich, and durable soil, plenty of water, and a temperature during growth of 60° F. The leaves being deciduous, the plant may be rested in a temperature of 45° F., and the bulbs require but little or no water until the following spring. C. latifolium is an Asiatic species, and is in no respect difficult to cultivate. By shading the plants from strong sunshine they may be grown out-of-doors during the summer months.

HIPPEASTRUM ORGANENSE.

Like many other species of Hippeastrum, H. anense (*Bot. Mag.*, t. 3803), has been crowded from most gardens by the showy cross-bred varieties. An example is now flowering here, from an importation of last year, described by the importer as having been found growing "in a sub-epiphytal state on the bifurcated trunks of forest trees in Brazil." It is characterised by having acute leaves, 1½ foot long; a peduncle as long as the leaves, bearing two flowers with short green tubes. The perianth segments are undulating, thin, and satiny, light crimson above, bright green below, and are united at the base by an ivory-white incurved corona. The plant requires an open, rather loose compost, as the roots ascend if they meet with much obstruction. The temperature and shading usually given to Cattleyas suits this plant.

ELISENA LONGIPETALA.

This beautiful and rare bulbous plant produces lorate, distichous leaves, a yard or more long, and a flattened peduncle, 4 feet high, bearing seven pure white flowers, each with a spreading limb, 9 inches in diameter, the segments being narrow, undulating, recurved, and much twisted. The stamens and styles are very conspicuous, and recurve at the tips. The plant requires a temperature of 55° F., when growing, with plenty of water, and shade from strong sunshine. The bulbs may be dried off gradually when growth has ceased, and the leaves begin to turn yellow, withholding water altogether from the beginning of the following winter until growth recommences. E. longipetala may be propagated by offsets or by seed, both of which it produces very sparingly. The plant grows well in a light sandy loam, enriched with leaf-soil, and if healthy, it should not be disturbed for several years. The plant was figured in the *Bot. Mag.*, t. 3873. *G. B. M., Isleworth.*

KEW NOTES.

MARANTA MAJOR, *hort.*—When a market-grower gets hold of a useful decorative-plant that is new to him, he gives it a name which fits it more or less, and serves his purpose. This is what happened to the plant known in gardens as Maranta major, which has been grown by London nurserymen for at least six years, finding a ready sale for furnishing purposes. It is described as a Maranta of pleasing aspect and graceful habit, with tufted leaves 2 to 3 feet high, composed of slender brown petioles, and an oval blade 4 to 9 inches long, of different shades of green. It has the constitution of an Aspidistra, enduring for a long time without injury the dry atmosphere and changing temperature of the dwelling-house. This plant has been grown at Kew for the last twenty years at least, and its correct name is Ischnosiphon leucophœus. The genus Ischnosiphon is closely related to Maranta, and consists of over a dozen species of tall green-leaved plants, with long, slender branching spikes of sheathing bracts, and small uninteresting flowers. All the species are natives of tropical America, I. leucophœus being Brazilian.

DIANTHERA ILLUSTRIS.

Plants of this pretty Acanthad, also called Porphyrocoma lanceolata, were exhibited under the first-mentioned name by Messrs. F. Sander & Co. at the meeting of the Royal Horticultural Society held on April 18. Although an old garden-plant, it puzzled the Floral Committee, and it was only on examples of it being forwarded to Kew, that it was identified with the plant figured in the *Botanical Magazine*, t. 4176 (1845). It is there described as "a truly charming plant, for the possession of which we are indebted to Mr. Forkel, gardener to His Majesty the King of the Belgians, at Brussels, who sent it to us under the above name; but, unfortunately, without any history, so as to leave us in the dark as to its native country, or the author of its very appropriate name (*porphyros*, purple; and *kome*, head of hair), given in allusion to the singularly richly-coloured spikes of deep purple, from within the scales of which the scarcely less brightly-coloured bluish flowers appear. It was exhibited in the Horticultural Society's Rooms, and excited admiration from the beauty of the blossoms, which consist in the dark purple comb-like parts, half covering the Lamium-like violet flowers." It grows to about a foot in height, and has drooping lanceolate dark-green leaves. It has been called Amphiscopia Pohliana, and is now known to be a native of Brazil.

RICHARDIA SUFFUSA.

Except for the absence of grey spots from the leaves, and the larger size of the spathe, I do not see how the plant exhibited at the Drill Hall last week under the first-mentioned name differs from R. melanoleuca, figured in the *Botanical Magazine*, t. 5765 (1869). This species is remarkable for its wide, almost heart-shaped leaf-blade, the presence of bristle-like hairs on the base of the leaf-stalk, the comparative shallowness of the spathe, which is cream-yellow, and open to the very base, thus exposing the large irregular blotch of dark purple at the base, and the short, erect spadix. It was first introduced by Mr. William Bull, and flowered in his Chelsea nursery in 1868. The absence of spots on the leaves of the plant shown last week is not of much significance, as everyone acquainted with the plants of this genus knows. Thus, there are green and spotted forms of R. Pentlandi and R. Elliotiana; and I have seen a green-leaved R. Rehmanni. R. aurata, of which a flower was shown for comparison with the plant called suffusa, is a form of R. hastata, which has very different leaves from R. melanoleuca. *W. W.*

THE ROCK GARDEN.

THE ROCK GARDEN AT LITTLE SILVER, HIGH BICKINGTON, NORTH DEVON.

THE accompanying illustrations depict a portion of a rock-garden which—on behalf of Messrs. R. Veitch & Son, Exeter—I had the pleasure of constructing about four years ago. Little Silver, the property of Captain Barton, is situated on a very conspicuous hill among picturesque surroundings, within a dozen miles of Barnstaple. The approach is by means of a rather steep carriage-drive, traversing a wood, but the summit of the hill on which the house stands is only scantily planted with trees, and affords therefore admirable views over many miles of the charming valley of the river Taw, which latter can be distinctly seen meandering through meadows, rocks, and woodland.

In laying out the grounds, the abrupt slope near the house was rather difficult to deal with. An ordinary terrace-slope among natural surroundings so bold and excessively undulating would have been quite out of place, and for this reason, chiefly, it was suggested that the grounds adjoining the house should be supported by apparently natural rock, which would not only harmonise better with the surrounding country but furnish an excellent home for alpine plants. A quarry of suitable stone was among the resources of the estate, from which it was an easy matter to procure suitable materials, consisting of stratified layers of hard shale, with veins of chert and ironstone.

A slope in front of the house was unavoidable, but it was made of a character as bold and undulating as possible, and varied here and there by rocks occurring singly or in scattered masses, having the appearance of having been forced through the sward by volcanic agency. In the steepest and boldest portion of this slope the rocks, too, were made to appear more imposing and more massive in character; and the first illustration (fig. 114) gives an idea of a small cave in this part of the work. This, especially on a hot summer day, forms a cosy retreat, with room to accommodate about half-a-dozen persons, its coolness being added to by a purling stream that issues from one of its recesses, which, after disappearing below the floor of the cave, forms a small pond as seen in the foreground of the illustration. The cave is so arranged as not to be dark in any part, and the large stones forming the roof are at some little distance from the back wall, and admit sufficient light to enable all kinds of Ferns, some species of Primula, and groups of Ramondia pyrenaica to flourish at the back of the cave. There, too, Adiantum pedatum expands its arching fronds to much advantage, and mossy Saxifrages help to enliven the scene.

The pond referred to had, of course, to be formed with cement, but of this every trace was carefully concealed, partly by groups of rocks, and partly by the sward dipping down to the level of the water. The aquatics visible in the picture are Aponogeton distachyon and Menyanthes trifoliata. But besides these a number of choice Water Lilies were planted in spaces specially prepared for them, and these afford excellent effects. Among the smaller species used are Nymphæa Laydeckeri rosea, N. pygmæa alba, and the pale yellow-flowered N. pygmæa helvola. The larger growing species of Water Lilies are N. Marliacea carnea, N. M. chromatella, and N. M. albida. The overflow from the pond forms a streamlet that loses itself beneath a rock. From the grassy banks bordering the pond and streamlet, spring colonies of moisture-loving plants, so arranged in this instance that the roots have easy access to the water. Among such plants, I may mention groups of German Iris and Iris Kæmpferi, the dark rose-coloured Lythrum Salicaria var. roseum superbum, Spiræa rivularis, S. astilboides, the tall and bold S. gigantea, S. palmata, Osmunda regalis, Carex pendula, C. regina, several forms of Hemerocallis, besides other moisture-loving plants.

The portion of the rock-garden immediately above the cave shows, in the second illustration (fig. 115), the exterior roof of the cave as seen from above. It also shows how in parts the rocks, for the sake of variety, have been interspersed with grassy banks, studded with suitable plants. In the foreground are batches of Genista scoparia var. Andreana, Fuchsia pumila, and Iceland Poppies in variety.

Towards the middle of the picture are seen the handsome corymbs of Anacampseros Borderi, whose fleshy leaves and red flowers remind one of Sedum macrophyllum; and here are also bright masses of Armeria maritima rosea, bright blue flowering Campanulas, the pink Acantholimon glumaceum, and several colonies of Megasea purpurea, which, with its large leathery leaves and rosy-purple flowers, is particularly striking in appearance. Other bold plants used are Yuccas, the graceful Hedysarum multijugum, Centaurea montana, in pink, white, and blue varieties, and a collection of Helianthemum in variety. This illustration also shows rocky steps leading from the cave and the lower portion of the ground to the higher level near the house. The steps have been adorned with species of Thyme, with Arenaria balearica, A. cæspitosa, Herniaria glabra, and other plants of prostrate habit, which in time will partly conceal them, and thus afford a natural appearance.

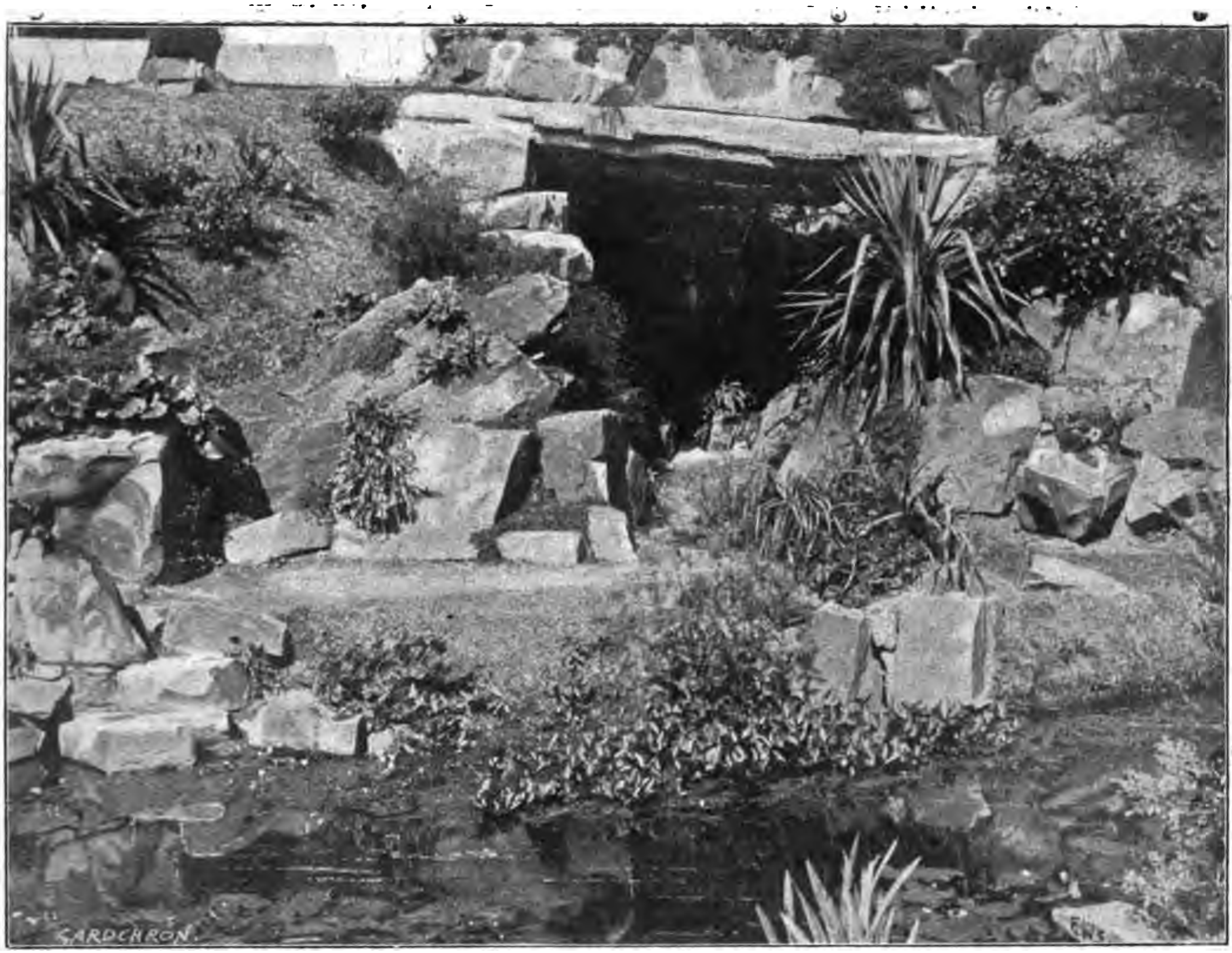

FIG. 114.—CAVE IN THE ROCK-GARDEN AT LITTLE SILVER, HIGH BICKINGTON, SOUTH DEVON. (SEE P. 310.)

(Constructed and photographed by F. W. Meyer.)

The whole rock-garden, from the fact of its being not a continuous mass of stones, but very much broken up by groups of plants or grassy banks, appears very much larger than it is in reality, and as the plants are arranged not so much with a view to immediate effect as to successive display of form and colour, there is always something in bloom.

I cannot go into details about all the plants used, but must be content with enumerating some of the principal ones which have given the best results. Among small plants I will mention Hutchinsia alpina, Primula viscosa, P. nivalis, P. villosa, P. Auricula, P. intermedia, Edelweiss, Saxifraga Burseriana, S. apiculata, S. oppositifolia, S. juniperina, S. sancta, S. longifolia, Potentilla nitida, Veronica telephiifolia, Achillea rupestris, various Gentianas, Sedum spatulifolium, Androsace carnea, A. lanuginosa, and many more. The plants just enumerated are so placed, that they cannot speedily be overrun by others to their injury. Among medium-sized plants of this type, I may mention Carlina acaulis, Dianthus arenarius, Helenium pumilum, Heuchera sanguinea, Campanula glomerata, C. dahurica, Zauschneria californica, Dianthus superbus, Eryngium alpinum, Morina longifolia, Centranthus coccineus, Lysimachia Nummularia, Prunella grandiflora, &c.

Here I may also quote a few of the taller kinds of perennials which were used partly in groups and partly as single specimens, viz., Lychnis chalcedonica, Campanula persicifolia alba, Helenium striatum, Echinops ruthenicus, Tritoma caulescens, Doronicum excelsum, Papaver concolor, Delphinium in variety, and many more.

That numbers of suitable "rock shrubs" were also used goes without saying, and among these were the bright Alpen Rose (Rhododendron ferrugineum), bushes of Cytisus nigricans, Indigofera Dosua, the Tree Ivy, Cotoneaster congesta, Erica codonodes, other species of Erica, and Japanese Maples.

Every part of the rock-garden is easily reached, either by a grass or gravel-path, or by rocky steps, very naturally contrived. For the pond and also for the roof of the cave the use of cement could not be avoided, otherwise no cement or mortar has been used in the construction. Where stones adjoin each other it was thought desirable to fill the crevices with soil and plants rather than with cement or mortar, and many of the choicer Alpines, if planted in suitable soil, succeed in such narrow crevices better than anywhere else.

The whole of the plants are now well established and in a flourishing condition. The illustrations are from photographs which I took last summer. *F. W. Meyer, Elmside, Exeter.*

THE MUSCARI.

(Concluded from p. 292.)

THE *Index Kewensis* enumerates some fifty-seven species. In the Kew *Hand-List of Herbaceous Plants* twenty-six species and varieties are given as being grown in the Royal Gardens, Kew, at the time of its compilation. There is not entire agreement between these two works. In the former M. atlanticum is referred to M. racemosum; while in the *Hand-List* it is kept apart. Similarly, M. macrocarpum is referred to M. moschatum in the *Index*, but in the *Hand-List* it appears as a species. M. Maweanum is not mentioned in the *Index*. M. suaveolens is given in the latter as synonymous with moschatum, but in the *Hand-List* it is a separate species; so is M. transsilvanicum in the *Hand-List*, but in the *Index* it is referred to M. botryoides. Where so much difference exists between these authorities, it is to be expected that the confusion in gardens and nurseries is even greater. One fears we must be content to take the names to some extent as they are. It will thus be found better to speak of the various Muscaris one has grown principally from a gardening point of view, and without committing ourselves to the correctness of the names.

M. botryoides, one of the best of our Grape-Hyacinths, is much less frequently seen than it should be; and one is surprised to find that in many districts it is not nearly so common as the considerably duller M. racemosum. M. botryoides, the sky-blue Grape-Hyacinth, is a lovely little flower, with charming bright blue flowers, with whitish margins round the orifices. Few flowers are brighter in their time than this Muscari. The flowers are arranged in a long cluster, which reaches from 6 to 12 inches above the soil. The linear and channelled leaves are erect. It comes from Southern Europe, and may well be the one spoken of by Ruskin in the words already quoted. There is a very beautiful pale blue variety named M. b. pallidum, which has long spikes of pretty flowers; a superior form of this is named grandiflorum. There are two or more white varieties. One sometimes passes under the name of M. b. album compactum. This has very small flowers, closely set in a small, short cluster, and is inferior in beauty to that known as M. b. album grandiflorum. This has larger blooms and longer spikes. There is a variety named M. b. carneum, which has whitish flowers, faintly tinged with flesh-colour. Eventually from this we may obtain the coveted red variety, unless it is obtained from the blue form. M. botryoides has the fault of increasing too rapidly.

M. Heldreichi, the Greek Grape-Hyacinth, is an exquisite little flower. It is not always obtainable true to name, but I have had it both by way of Italy and Holland. It is said by some that it is later than M. botryoides, but the contrary is the case with me. Here it is the first of the true Muscaris to bloom; it is lighter in colour than the typical M. botryoides, with more of white on the flower and having larger blooms. M. Heldreichi increases freely at the root, but I have not had any seedlings, so far as I have seen, in the number of years it has been in my garden; it grows to 9 inches high in light soil.

The old M. racemosum looks dull and ineffective when compared with the foregoing, its deep blue flowers, which have what is described as "the odour of plums," being dull and wanting in brightness. They are smaller also, and in a close cluster. The leaves are spreading and nearly prostrate. Very pleasing is M. r. carneum with pink blooms. M. neglectum is closely connected with M. racemosum, but is, in the writer's opinion, more handsome with its sweet-scented long raceme of deep blue flowers. One finds these two do duty for each other in some bulb-gardens. M. commutatum, a Sicilian species, has blue flowers which pass off to purple; it is very pleasing in some of its stages with its many-flowered racemes. M. suaveolens, or what I have had for it, was not unlike M. neglectum, but with a stronger perfume.

My first acquaintance with M. atlanticum was made in the Edinburgh Botanic Gardens many years ago, but it was some time before I had it. It is of a dark, not yet dull, blue, and has a fine, compact raceme of flowers. I should hardly class it—or at least the plant I have for it—with M. racemosum. I appear to have lost M. armeniacum in the course of some garden alterations; I know that I had it, but it has now disappeared. It is a lovely little Muscari, with fragrant flowers of bright dark blue, with three yellow spots near the mouth.

M. Szovitsianum is a very beautiful little Muscari, with small flowers on a short raceme. The flowers are of a light blue, of a shade near, but not the same as, that of Heldreichi. It is of dwarf habit, and comes into bloom rather early. M. conicum is a lovely species, said, in the *Dictionary of Gardening*, to come from the Campagna; but, according to the *Kew Hand-List*, its habitat is "uncertain." Wherever it comes from, it is one of the finest of our Grape-Hyacinths. It has been called "Heavenly Blue" by one of our nurserymen, and there is some excuse for the name, although it strongly resembles some of those given to flowers by pushful nurserymen among our kinsfolk across the Atlantic. Under the name of M. Pinardi, I had from a continental nursery a Muscari which, despite its glowing description, had no particular merit.

When seen in a mass, M. Maweanum is pretty, but where there is so much resemblance among members of the genus that it is hardly worth having by those persons who desire flowers showing some distinctness. M. Argaei, as I have had it, appears to be the same as M. atlanticum, but I think it should have smaller flowers, and a shorter raceme. M. polyanthum, which is well spoken of, is here, but it is flowering for the first time this year, and is not, at the time of writing, so far advanced as to enable me to speak with any confidence.

M. pallens I do not much care much for. It is not pure enough to be called white, nor sufficiently coloured to be pearl-blue. The racemes are comparatively few-flowered; it comes from the Caucasus and the Crimea. From Broussa I received what appears to be M. pallens, under the collector's name of M. racemosum album. What I have as M. Strangwaisii is a pretty little flower with sharpish racemes, and of free-blooming habit. Among those of this section of Muscaris whose acquaintance I have yet to make are M. Lelievrii, M. latifolium, and a few more or less doubtful species. Muscari comosum is more appreciated as a curiosity than for its beauty; it grows very vigorously here, and usually causes some surprise among people who see it for the first time, although their remark of "queer-looking" is not very flattering to its appearance. In a continental catalogue one finds a considerable number of varieties of M. comosum offered. Acquaintance with the type does not induce me to add these to my garden flowers. It is a singular flower with its tasselled head. Its variety, M. comosum monstrosum, the feathered Hyacinth, is, however, both singular and ornamental, so that it is to be regretted that one sees it so seldom now. Its violet-blue flowers, of slender, frizzled filaments, are quite unique among bulbous plants.

Only for a year or two after purchasing them have I been able to bloom the Muscaris of the type of M. moschatum. The typical M. moschatum is inconspicuous with its greenish-yellow flowers, but the sweetness of their odour is some recompense for the poor colour. Under the name of M. macrocarpum I had a form with brighter flowers, but I have been unable to ascertain whether this was the true M. macrocarpum, or the variety of M. moschatum named flavum. I have compared experience with a number of my friends who have tried the Musk-scented Grape-Hyacinths. Unfortunately they seem no more fortunate in blooming it in successive years than the writer.

I am all too conscious of the shortcomings of this account of the Muscaris. Only those who have tried to work out the genus can appreciate the obstacles in the way of a satisfactory notice. This is, however, presented with the object of endeavouring to draw some attention to a pretty, but neglected, class of plants adapted to the ornament of our gardens. *S. Arnott, Carsethorn, by Dumfries, N.B.*

HATFIELD PRIORY, WITHAM.

PLEASANTLY situated in a beautifully wooded park, 3½ miles southward from Witham, and within 1 mile of the picturesque village of Hatfield Peverel, is Hatfield Priory, the property of C. W. Parker, Esq. The several fine specimens of Cedrus Libani which luxuriate near to and in front of the Priory, go to show the ancient date of the old Priory. This building has been superseded by the present edifice—a square house built in the Georgian style. The huge fan-like branches of the Cedars reach to the lawn, and the trunk of the largest one measures 23 feet in circumference. The grounds opposite the south front of the house slope sharply from the terrace down to the fence dividing them from the park. Here a series of flower-beds on the turf form a pretty design, though they might be thought by some to be somewhat crowded. The view from the flower-garden southward is extensive and diversified, and includes "Little Baddow," a favourite place for pic-nics, a short distance from the river Chelmer. The woodland scenery west of the house is satisfying. A grand shapely specimen of the common Beech stands out boldly by itself to the left, and within about 100 yards of the sheet of water at this side of the Priory. There are also numerous handsome specimens of the Ash, Oak, Elm, Chestnut, Plane, Sycamore, in the park and grounds. At the north side of the house, Mr. Parker converted a border of large overgrown Rhododendrons into veritable trees, furnished with young growth, and thick healthy-looking foliage, from the ground up to a height of between 3 and 4 feet, by skilful pruning. A fine Holly-hedge close by also bears evidence of his ability to convert and shape long-neglected and objectionable tree-growth into objects of beauty. Those who built, or were responsible for the building, of monasteries and priories, have one and all left evidence of their great desire to enclose them with tall hedges and trees, in order to ensure privacy. A large plant of Magnolia grandiflora, trained over a wall on the south-side of the Priory, with its large white flowers and handsome green leaves, was very effective. A nice plant of M. conspicua, similarly trained, appeared to be trying its best to cover the space allotted to it on the wall.

The church stands in the grounds of Hatfield Priory, and a very pretty one it is. The family have an entrance to it from the Priory itself; and on the velvety turf on either side the central walk, some pretty designs are cut, a Maltese cross forming the centre of the figure, that on one side being a facsimile of the design on the other side. These beds at the time of my visit (August 6) were very attractive, being filled with suitable flowering, foliage, and subtropical plants. Beds filled with Black Douglas Pelargoniums, and edged with the silvery-leaved Flower-of-Spring Pelargoniums, showed off to advantage. The Maltese Cross, with Tropæolum Vesuvius, edged with Golden Feather, and patches of blue Lobelia at each end, and "dot" plants of Chamæpeuce diacantha was effective as a bit of bedding-out. Begonias semperflorens was employed with good effect in the composition of these beds. A ribbon border running parallel with the south wall of the church, planted with sub-tropicals, and Calceolaria amplexicaulis in the back row, and Verbenas in the front, were attractive, as were also Clematis Jackmanni, the variegated form of Lonicera flexuosa, and Jasminum officinale, trained up the church wall. A wall formed the boundary of this miniature and neatly-kept flower-garden on the north side, clothed from bottom to top with Euonymus radicans variegatus, which formed a striking contrast to the green, closely-cut grass and the various shades of colour in the foliage and flowering plants which occupied the bed in the foreground.

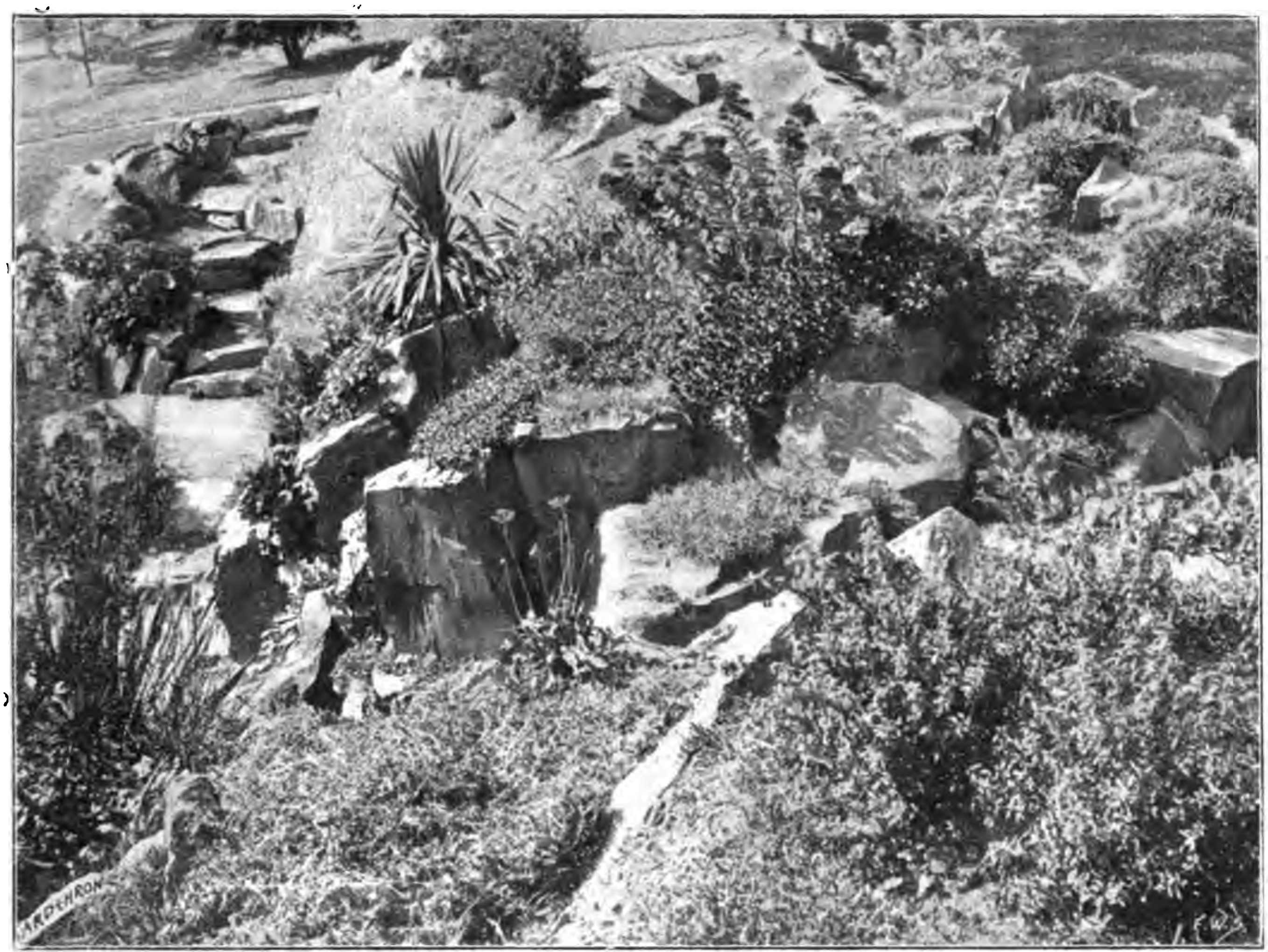

Fig. 115.—Part of Rock-garden, Little Silver, High Bickington, South Devon. (See p. 311.)

Herbaceous plants are found in beds and borders in suitable places in the gardens, such as Alstrœmerias, Delphiniums (including various and beautiful shades of blue), Doronicum Harpur Crewe, Echinops Ritro, with its prickly heads of blue flowers, Eryngium amethystinum, the silvery Thistle-like foliage, surmounted by heads of metallic-blue flowers, being very handsome and telling in effect, Gaillardias of the grandiflora type, &c.

The conditions in the kitchen garden go to show that grand crops of fruit, vegetables, and flowers can be obtained even during a dry season like that of last year, if the soil be kept moist.

Fruit-trees of the best kinds and varieties have been planted against walls, and on either side of the walks within the last eight or nine years, and the growth of these trees has been guided by skilful hands; and the trees were of such Plums as Kirke's, Denniston's Superb, Coe's Golden Drop, Green Gage, Reine Claude de Bavay, Transparent Gage, and Victoria. The Peaches and Nectarines succeed well on south walls, and the trees were clean in foliage and well trained. A Black Hamburgh Vine on the same wall is in fine condition, and bears in its season a fine crop of fair-sized bunches, which usually ripen well. Espaliers or horizontally-trained Apples (young trees) of Irish Peach, Beauty of Bath, Ribston Pippin, and Cox's Orange bear good crops of large, clean-skinned fruit, and Ribston Pippin comes especially fine and good. A fine old tree of Louise Bonne of Jersey covers a wall-space of 288 square feet, and on the lower branches of this tree there have been engrafted scions of Glou Morceau, Beurré Diel, and Bellissime d'Hiver, with the result that the tree is furnished with healthy, short-jointed wood, and in most years plenty of fruit. I may here remark that this and many other wall trees Mr. Kerry, the gardener at this place, found with shoots crowded together, and standing from 12 to 15 inches out from the wall when he took charge of the gardens some nine years ago. By a persistent and judicious pruning year after year, he has succeeded in converting the neglected, almost barren trees into shapely, fruitful ones. The old spurs having been severely thinned out the first year, and those retained trimmed into shape, young shoots perforce pushed from the main horizontal branches, these being duly pinched and pruned, formed spurs and fruit-buds close to the branches, and the remaining projecting spurs or branches were removed altogether to make space for young ones. A fine tree of the Brown Turkey Fig occupies a south-eastern aspect between two buttresses of the wall of the church, the shoots being allowed proper space on the wall to develop, and at the same time benefit by exposure to the sun's rays. A plantation of Superlative Raspberries is well worth seeing, the canes being from 6 to 8 ft. high and very thick. They bear heavy crops of extra large fruit, fine in colour and flavour.

The glasshouses consist of two vineries, a stove, an orchard-house, a conservatory, a cool-house, Melon and Cucumber pits and frames. The crops of Madresfield Court, Black Hamburgh, and Muscat of Alexandria Grapes were very satisfactory. In the stove, well-grown plants of Dendrobium nobile were observed; and in the conservatory and cool greenhouse were noticeable several fine specimens of Campanula pyramidalis alba, as well as the blue variety, having spikes of well-developed flowers, about 7 feet high; Habrothamnus elegans, trained up a back wall, was profusely flowered; tuberous-rooted Begonias and Celosia pyramidalis coccinea and C. p. aurea showed good culture, and made a nice display.

In conclusion, I may be allowed to say that Mr. S. Kerry (who was a pupil of the late W. W. Wildsmith, and the last man whom he assisted into a head place) is an enthusiastic gardener, and he is to be congratulated upon having employers who take such great interest in their garden and in gardening generally as Mr. and Mrs. Parker, to whose kindness on the occasion of my visit I feel indebted. *H. W. W.*

VARIATION.

MANY years ago I had the pleasure of visiting a high-class turning establishment in London, and seeing some of those wonderful compound lathes by which the more complicated and varied designs are worked out in hardwoods and ivory. In these lathes, besides the ordinary revolving motion imparted to the article, the chucks holding it were also capable of lateral perpendicular motion, ranging from horizontal straight lines to perpendicular ones through all grades of the oval, and even through figures of eight. The cutting tools were also actuated to perform independent motions of their own, so that when brought into contact with the faces or sides of the object operated on, their eccentric cuts formed combinations with the eccentric motion of the object, the result being patterns of marvellous complexity and perfection. To attain these results, discs of metal were attached to the apparatus, with holes in their margin numbered from 1 to say 360, and the combinations were determined exactly by means of pegs inserted into these holes in such numerical orders as formed divisions without a remainder. A cut, therefore, forming a figure of 8, or a narrow oval, could be made in a flat surface either 360 times, each one at a distance of 1-360th from its neighbour, constituting an extremely fine pattern; or it might be cut only 180, 90, 45, 120, 60, 30, 15, or, indeed, as I have said, any number into which 360 can be divided without a remainder, so that at a complete turn of the disc the same starting hole is reached. Clearly every alteration of number alters the pattern, as does every change in the width of the oval or figure of 8, and further, so does every alteration in the depth of the cut; while if the cut face be moved, at same time another set of changes is worked in, and in fact an infinite variety is obtainable. Furthermore, it is obvious that symmetry of pattern depends upon the numbers being correctly calculated, since if these do not count out properly there is either a gap or an overlap when the final cut is made. Finally, I was shown a series of books filled with nothing but numbers, each set of which represented an intricate pattern which was bound to appear when the pegs were adjusted to the controlling discs in accordance with the figures.

Now, it has frequently occurred to me in studying the phenomena of variation in plants, and especially in Ferns, that we have something akin to this lathe business underlying the "sports," i.e., the abnormal forms, symmetrical and unsymmetrical, constant and inconstant, of which such an extraordinary number exist. We have not, of course, to do with actual numbers, but we have to do with complex workings within the cell, which normally work out on certain definite lines known as specific or generic ones. Some forces pull one way, some another, and in hybrids and crosses this conflict is accentuated. Two sets of numerical discs, to adopt the parallel for the sake of the argument, are introduced into the machine, and if these numbers harmonise, that is, count out without remainders, we get a symmetrical and constant cross or hybrid; but if these do not, reversion or imperfection of some sort is constantly occurring, the equilibrium is unstable, and no amount of selection from the offspring of such imperfect plants can make odd numbers even ones. On the other hand, if the combination be a specially happy one, a perfect fit, so to speak, it may be expected to persist, and breed true to type. The molecular theory teaches us that the atoms of everything, organic or inorganic, are in a perpetual state of vibration, and we may reasonably assume that every living plant has its particular harmony established between the varied elemental atoms composing it. Hybrids and crosses involve, therefore, complex combinations in which harmony comes out as constancy, and discord as inconstancy, precisely as exact and inexact adjustments of the lathe aforesaid mean regular or irregular work, that is, successes or failures. We know, indeed, so little of the marvellous inner workings of nature that at present we are but groping in the dark with our experiments and studies, but it is quite conceivable that a fuller knowledge would enable a mathematician to calculate to a nicety what the result of a cross would be by calculation of the potencies of each parent. This, however, we predict will require a long string of Victorian eras of progress to bring about, and meanwhile we can only work hard, experiment freely, and glean as much as we can from the results obtained. *Chas. T. Druery, F.L.S., V.M.H.*

THE FRUIT-TREE BARK-BEETLE.

(SCOLYTUS RUGULOSUS, RATZ.)

ON May 16, 1898, Prof. E. A. Popenoe wrote from Topeka, Kans., that in a search for trees attacked by this species in different portions of Kansas, many rows of trees were examined, and in nearly every tree affected the top was blighted, or a stump remained whence a blighted branch had been cut. Beetles were also noticed in Pear-trees whose leaves were coloured so as to indicate ill-health, and were found to be also diseased at the root below the budding point. Many of the diseased trees showed the beetles just beginning work, precluding the possibility of the appearance of disease resulting from the beetle attack. The conclusion was reached that the diseased trees were preferred by the Scolytus as a place of oviposition. In a few trees, however, the beetles were found at work where there was no sign whatever of ill-health in the tree attacked, thus corroborating statements of like nature previously made by the writer.

Mr. Ernest Walker, of Clemson College, S. C., wrote on May 18 that this species was doing damage on Prunus Simoni, and Japanese Plums.

Mr. J. C. Andrus, Manchester, Scott County, Ill., stated in a letter dated May 15 that in his experience this species attacks Mountain Ash and Juneberry (Amelanchier canadensis), both new food-plants for this country, and the latter unrecorded.

In response to inquiry in regard to remedies, Mr. C. C. Beals, of New London, Howard County, Ind., wrote under date of August 23, that this insect made its appearance at that place about the middle of July, peppering the bark of the Cherry-trees with holes, and running about over the bark. In two or three days after the first-noticed appearance, a tree was sprayed with kerosene, but this had no apparent effect. The kerosene was then rubbed upon the trunk and larger branches, with the result that all the beetles were killed. At the time of writing, the tree was doing well. Writing again on October 25, Mr. Beals stated that although the kerosene killed the insects with which it came in contact, the experiment was not an entire success, for the reason that the smaller branches and twigs were not treated.

As still further corroboration of the statements previously made, that this species will attack healthy trees, the writer observed during the season of 1898 in the same orchard mentioned in the footnote on p. 3 of the circular, a perfectly healthy Apple-tree, which had been attacked evidently several years previously, judging from the nearly obsolete scars on the trunk. Specimens of the beetle, dead in two or three of the burrows, showed beyond doubt that this was the species concerned, were it possible to mistake its work for that of any other known Scolytid. The Apple-tree had entirely recovered from attack.

The Peach-tree mentioned in the same footnote as apparently perfectly sound except for the attack of the beetles, was again attacked last fall, and will be kept under observation, as it is probable that it will not be able to survive more than one or two years under the circumstances. The particular place selected by the beetles for their principal attack in 1897 showed the presence of "sun scald" early in the succeeding summer. Later this space, which was on the main part of the trunk, was found to be badly infested with the Peach-borer (Sannina exitiosa). Some of the smaller branches had attracted another well-known borer of the Peach, Phlœotribus liminaris, Harr., and the tree now shows the effect of attack, although no beetles have yet bred from any except one dead branch.

The presence of this bark-beetle in trees infested by the San José scale, as mentioned on page 2 of the circular, was again noticed in the present year, but Messrs. W. G. Johnson and F. M. Webster have both informed me that this is unusual.

Chiropachys colon, Linn., the most abundant and destructive parasitic enemy of this bark-beetle, was noticed abroad the past year as early as April 9. *Extracted from Bulletin No.* 19, *New Series, U. S. Department of Agriculture, Division of Entomology.*

FLORISTS' FLOWERS.

AURICULAS AT BRACKNELL, BERKS.

THE centres of Auricula-culture change, and somewhat rapidly. Slough at one time used to furnish Auriculas that could hold their own against all comers, but that is so no longer, though occasionally a few superb alpines come from there. Then Loxford Hall, and Great Gearies, with Mr. James Douglas, became important centres, Rev. F. D. Horner coming occasionally from the North to try conclusions with him. Then Reading, with its band of enthusiastic amateur cultivators, became an active centre, and yet at the last exhibition of the National Auricula Society not a plant from Reading so far as I know of was shown. Mr. Douglas, who in his time has raised several good varieties, still grows at, and exhibits them successfully from Bookham, but not with the striking success of a bygone time. Mr. C. Phillips, at Bracknell, and Mr. W. Smith, at Bishop's Stortford, appear to be rapidly coming into the front rank in the near future, but a probable important point of Auricula cultivation will be Bracknell.

Mr. Phillips, though retaining his position as the manager of a local bank, has embarked in business at Bracknell, and taken as a partner Mr. James R. Taylor, who was for seven years gardener to H. R. H. The Duke of Connaught, at Bagshot Park. So far, the nursery, if such a term may be applied to such a restricted space, consists of three glass-houses, one devoted in spring to Auriculas, and the other two to Carnations. These will be the leading specialties, Mr. Phillips having succeeded in getting together a remarkably good collection of Auriculas, and he is particularly successful in their cultivation. The open, breezy country side of Bracknell appears to afford the plants just the conditions of healthy development they require.

At the time of my visit the collection was in good bloom. A broad span-roofed house, with a stage on either side, was full of show and alpine varieties, one stage being filled with the former and the other with the latter forms. Of green edges, Mrs. Henwood was seen to the best advantage; it is a flower of fine proportions, raised by the late Samuel Barlow, producing a stout stem and a bold truss of excellent pips, and it is also a vigorous grower. Like Simonite's Rev. F. D. Horner, it is a certain exhibition variety, and these two being so constant, are likely to stand at the head of the green-edged section for some years to come. Abbé Lizst is a very bright variety, of good habit, but rather open in the tube; it is still scarce, and being so, is perhaps somewhat severely divided in order to procure stock; there is great promise of usefulness before it. Horner's Monarch, shown as a seedling in very fine character, appears to be quite unreliable, coming confused, and even semi-double; it has a good tube, paste, and body colour; time may correct these floral vagaries. The fine old Prince of Greens, up to a few years ago our leading green edge, increases but very slowly in the south, and will therefore be always scarce and dear; it seems to do best in its northern home. Lovely Ann was to be seen here with its bright green edge; also Simonite's new green edge, James Hannaford, with a very few older varieties.

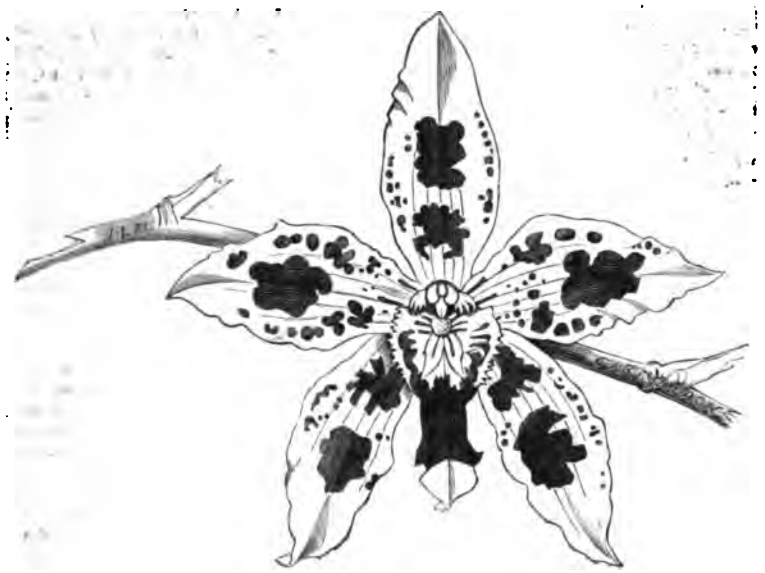

FIG. 116.—ODONTOGLOSSUM CORADINEI: WEST BANK HOUSE VARIETY.
Ground colour lemon-yellow, with brown blotches and red-brown dots.

Of grey edges, George Lightbody, raised and named by his old friend Richard Headley, and Richard Headley raised and named by George Lightbody — a touching memento of the warm friendship which existed between these two men until death severed it—stand at the top of the section. Both are superb varieties, but R. Headley is late. When at its best, as I saw it at Bracknell, it is rich, striking, superb; the leaves of this variety are freely mealed on the edges. Headley's Alderman Wisbey, though classed with the green edges, was here, as is sometimes the case, a capital grey edge. Dinham, raised by the late Mr. R. Kyrke-Penson, is a capital flower when caught in good character; it lacks refinement, which will doubtless come with culture. Old Robin Lancashire's Hero, which is now known as Lancashire Hero, was also in good form, and considering it has been in cultivation more than half a century, holds its own among the peers of the grey edged section. Dr. Kidd (Douglas) was in good character; and also William Brockbank, with its glorious golden tube and dense white paste, but with the unfortunate tendency on the part of the pip to recurve on the edges. George Rudd, Marmion, Rachel (at times an excellent white edge), and Mabel, all good varieties, are also in the collection. George Rudd is a most useful "grey edge," as it is a variety always to be depended upon, and it will perpetuate the memory of its raiser, Woodhead, for many years to come. At times it is almost a "white edge;" it has a rare body colour, and good petal. Rachel, by the same raiser, is very like it, but is not so strong in the tube or so compact in the truss, and is liable to rot at the tap-root. Marmion is mostly a "white edge," and is, perhaps, one of the best Auriculas Mr. Douglas has raised, but the pips do not expand kindly.

Acme is the most useful "white edge," because so constant, having also such a rich tube, and handsomely-mealed foliage. It is the only flower raised by Mr. John Read which remains in cultivation; as it throws offsets very freely, it is both plentiful and cheap. Conservative (Douglas) comes near to it, but the foliage has little or no meal. Other good white edges are Walker's John Simonite, Woodhead's Mrs. Dodwell, Simonite's Heather Bell, and Mellor's Reliance.

Mr. Phillips confines himself to but few selfs; one of the most useful is Woodhead's Black Bess. Horner's Heroine is not so good at Bracknell, and it is apt to come shaded on the edge; yet cultivators and exhibitors will always be grateful to Mr. Horner for this variety, for it gave them a model of form in self Auriculas—when at its best, it stands at the top of its class. Barlow's Mrs. Potts is a self flower of almost perfect finish as a blue self, but it has a weak tube in common with the blue selfs, and a weak flower-stalk, while its growth of leaves is tall and ungainly. Ruby (Simonite), is a bright red self, a great improvement upon Lord of Lorne, having a finer pip, stronger tube, handsome mealed foliage, and is a great acquisition. Mr. Phillips has himself raised two fine dark selfs, one, Miss Barnett, is already in commerce; it is of a rich claret colour, tube, paste, and shape, all remarkably good; and Mrs. Phillips, maroon-crimson, a companion flower in point of general good qualities. The fine yellow self Buttercup (Horner) is also in the collection; and one very similar, raised by Mr. Phillips.

It is as a raiser of alpine varieties in particular that Mr. Phillips has made his mark, and he has probably raised and named as many as fifty, with finely-shaped smooth pips. Of golden centres his best varieties are May, Evelyn Phillips, Mrs. Martin Smith, Chastity, Mrs. Gorton, Saturn (very bright), A. R. Brown, Little Gem, Topsy (a brilliant variety), Dreadnought, Dr. Jameson, Regina, Cassandra (extra fine), Miranda, Mira (a superb variety), and Princess Louise. White centres: Perfection, with its exquisitely-shaped pip; New Colour, very distinct; Gladys, and Sister Mary. There is ample room for improvement in the white centres, and Mr. Phillips is in a fair way to secure it.

There is also a general collection of Carnations filling a large house, now that they are potted up for blooming, including Malmaisons in some sixteen varieties, which are to be made a leading feature, and winter-flowering sorts. A fine yellow-ground Picotee, raised and named by Mr. Phillips as Lady Clementine Walsh, is very early to bloom, and a robust grower. In addition, there are a considerable number of seedling Carnations in the open ground.

Violets are to be a specialty, and already a large number are planted out. The leading double varieties are Marie Louise, Lady Hume Campbell, and de Parme; single varieties: Princess of Wales, Princess Beatrice, The Czar, W. W. Astor, California, &c.

A well-chosen collection of herbaceous plants is already formed, and new ground is being broken up by way of extension. A goodly number of seedling Carnations of the best blood, from spring-sown seeds, is also coming on for succession. *R. D.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM × CORADINEI, WEST BANK HOUSE VAR.

As with most Odontoglossums, so in the representatives of this natural hybrid between O. Lindleyanum and O. crispum, there is much variation. The ordinary forms with their narrow pale yellow segments, bearing a few brown blotches, being esteemed only superior to O. Lindleyanum; while the remarkable varieties, which are however very scarce, are fit to rank with O. triumphans and others of the showier section. In both good and bad forms, the long straight column followed for the greater portion of its length, by the basal part of the labellum, is a characteristic showing the affinity to O. Lindleyanum. The features of the indifferent varieties are distinctly those of O. Lindleyanum modified by O. crispum, while the good forms in their broader ovate-lanceolate outline, show O. crispum changed and coloured by the influence of O. Lindleyanum. Therefore we may conclude that the cross has been effected both ways.

A flower of the handsomest variety I have yet seen, and which, in its good form and bright colours, imitates O. triumphans, has been received from J. Leemann, Esq., West Bank House, Heaton Mersey (gr., Mr. A. Edge), with whom it has flowered among imported Odontoglossums (fig. 116). The sepal and petals are ovate-lanceolate, and nearly equal in width. The ground colour is lemon-yellow, changing to nearly white towards the base. The sepals each bear in the middle one large chestnut-red blotch, about ½ inch in length, and one smaller blotch towards the base, the margin having a chain of small red-brown dots. The petals have the large chestnut-red blotch on the outer half, the lower parts and margin bearing clusters of small red-brown spots. The tip of each segment is bright yellow. The lip, which is showier than the ordinary varieties, though of the usual form, has the blade, except the apex, chestnut-red, the base cream-white with red lines.

COLONIAL NOTES.

TASMANIA.

A CORRESPONDENT in Launceston, Tasmania, writes as follows:—"I may say that our harvest has been very plenteous, but, sad to say, prices are low, the prices offering for Wheat being under 2*s.* per bushel. There is a movement to try and open up a trade with England, but I doubt of its success. Our Apple crop has just come in, the *Britannia* sailing last week with the first shipment for England. Unfortunately, we have so many pests to contend with, that any one blessed with a garden or orchard has to be continually at work spraying the foliage or bandaging the stems of his trees, in order to mitigate the nuisances to some extent. We have just experienced a month of very hot weather (rather exceptionally so, as the early part of the summer was very cool); this was very acceptable, as the vegetable-fruits, Tomatos, &c., were very backward, but the hot weather has brought them along nicely." The above communication was despatched last February. *O. M.*

TETRATHECA PILOSA VAR. FLORIBUNDA.

This is a much branched, compact, and heath-like, glabrous, or hispid shrub, seldom exceeding 1 or 1½ foot in height, flowers axillary red, pink, and sometimes white. It is a native of the Mount Lofty ranges, S. Australia. Amongst our numerous species and varieties of Tetratheca, the above described variety is by far the showiest. It is very easy of culture. Seeds germinate very readily, and it can easily be propagated from cuttings. *O. E. Menzel, Aldgate, S. Australia.* [With this came splendid specimens covered with flowers, which retain their brilliant colour when dried. The photograph sent, shows a well-grown plant full of bloom in a large pot, but the outlines of the flowers are too indistinct to enable us to reproduce it. It would make a magnificent specimen plant at an exhibition. Ed.]

DOWN HOUSE, BLANDFORD.

The seat of Sir W. H. S. Marriott, Bart., is about two miles from the town, and is at all seasons a place of considerable interest. The park and grounds are extensive, and the size and general appearance of the trees prove that the larger number of them flourish, though the surface-soil on many parts of the estate is scarcely more than 8 inches deep. Beech, Lime, Elm, and Ash appear good, and of Conifers there are many grand specimens.

The glass-houses are numerous, and well furnished with plants. Sir W. Marriott is well known to be a keen collector and good judge of Orchids. Many of these plants were disposed of some years ago, and it was interesting to listen to the noble proprietor and his gardener, Mr. W. Denny, as they described to me specimens that had grown and flowered here in days gone by.

The first house we entered was devoted to the Odontoglossums. More light appeared to be given the plants than is customary, and the purple colouring of the bulbs and leaves would seem to indicate that robustness followed this kind of treatment, for the flowers were remarkable for their size and vigour. In a case at the back of a portion of this house, kept constantly moist, were large plants of Todeas superba and pellucida, Trichomanes radicans, and other filmy Ferns. Dendrobium Jamesianum was represented by numerous fine plants. Odontoglossum coronarium is cultivated in baskets, but, as in many other places, it does not flower very freely.

In another house Cypripediums are cultivated with much success, and in every house devoted to Orchids it may be seen that the raising of seedlings is carried out persistently, and with intelligence.

Dendrobium Phalænopsis is grown in quantity, the bulbs of recent growth being even finer than many of the imported ones. Lælia cinnabarina and Cattleya Skinneri grow close to Adiantum Farleyense, whilst over all is a large plant of Allamanda Hendersoni. The Cattleyas are cultivated very successfully, and include specimens of great interest. In addition to the fine collection of Orchids, there are vineries, Peach-houses, Melon and Cucumber-houses, all of which are managed with conspicuous ability. The kitchen-garden is cropped fully during the season.

THE PLEASURE GROUNDS.

There are trees of Cupressus Lawsoniana 40 feet high, and Sequoia gigantea 60 feet. Abies Smithiana is a fine specimen; Cedrus Deodara, Taxodium sempervirens are well relieved with clumps of Retinospora plumosa aurea. An Abies Pinsapo is just 50 feet high. A. Nordmanniana is represented by many perfect specimens. The Yew Maze is in capital condition; Walnuts and noble Beech trees and Oaks constantly come into view, with Cupressus macrocarpa, Abies Douglasii, immense Scotch Firs, and avenues of Limes. In other parts were avenues of Hornbeam. *Traveller.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

The Spring Garden.—Most of the spring-flowering plants will now have passed their best for the season, and should be taken up and propagated by various methods. The varieties of Polyanthus, known as Dean's strain, are charming spring bedders, hardy, and very effective. The plants, when lifted, should be divided into pieces with three crowns each, and the flower-stems and seed-vessels pricked off, and then be planted in rows on a partially shady or north border. The Polyanthus succeeds in a retentive soil, enriched with cow-manure. Seed of these plants may now be sown in boxes, and placed in a cold frame. When large enough prick them out 6 inches apart in beds, and they will make serviceable plants this year. All hardy species of Primulas succeed when treated in this manner.

Daisies, which are also fine plants for spring-bedding, are of easy culture, and form fine masses of colour when thickly planted. The ordinary double flowered crimson and white varieties are the best for bedding purposes. Only large clumps of Daisies should be divided, as flowering greatly exhausts the plants. These pieces should be planted in a light, open, cool position, using good sandy loam about the roots in planting them, and affording shading from sunshine, and a sprinkling overhead after sunset until established. Afford plenty of water to the plants in dry weather. The variety Aucubæfolia, which has spotted leaves, is not so effective as a bedder as those Daisies which have green leaves. Daisies may be raised from seed, which should be sown during the present month.

Myosotis dissitiflora is an early-flowering Forget-Me-Not that does well in the beds here, providing young seedling plants are used. M. sylvatica is also very effective, and the plant is more compact than the first named. Both are raised from seed, and sown this month in the open border. M. alpestris Victoria is a compact grower, but it is quite a fortnight later in flowering than these. It is propagated by division. All Myosotis succeed in cool, moist ground, that is not made too rich.

Arabis albida, with variegated leaves, make a pretty effect planted alternately with Myosotis. A. lucida folia variegata is very effective as an edging plant of miscellaneous beds, remaining bright throughout the winter. Stachys lanata makes an excellent bordering to Tulip-beds; Alyssum saxatile compactum is late in flowering, but it makes an excellent edging to permanent beds, the variegated variety keeping its colour best when planted in poor soil. Violas are late in flowering this year, and generally have to be removed in full beauty, to make way for the other bedders. Aubrietias, too, are late this year. They succeed best in a position where they are not disturbed yearly.

Beds.—As soon as the plants are lifted, dig the soil deeply, leaving it in a rough state. After this is done add some loamy soil which has been exposed to the weather and is pulverised, and sufficient leaf-mould, according to the requirements of the plants which will be set out. Some beds need only to be raked over to make them fit for the reception of the summer flowering plants.

Flowering Shrubs.—Forsythia suspensa should now have the shoots that have flowered shortened, leaving three to four buds, and allowing the terminal shoots to grow and hang down. Growths quite near the ground, and shaded by the upper ones, are better cut away. Ribes, both single and double-flowered varieties, should now be pruned, cutting back the shoots that have flowered, and afford a dressing of manure, or liberally apply manure-water if any of the shrubs are weak. Mahonia aquifolia, if cut back hard after flowering, will push growths and become more decorative than when it is allowed to grow unpruned and show the leafless stems.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore Maidenhead.

Mulching.—Remembering the drought of the past two or three years, the gardener will be exercising caution if he carry out a system of mulching for the Pear and Peach-trees growing on south and west walls, and the bush-trees everywhere, as Apples, Plums, and Apricots. This is the more necessary in light soils, or where the subsoil is gravel, sand, or rock. As a mulch for fruit-trees and bushes, nothing is better than half-rotten manure from the stables; and if the surface-soil is very hard, it should first be hoed over, or very slightly pointed over with a digging-fork or "graft." Young trees making strong growth will need no mulch; or if it be afforded, half-rotten bracken, or spent hotbed-manure, will suffice. The suckers, which nearly always arise from the roots, of the Plum-stocks on which Peaches and Plums are worked, must be carefully removed, by scraping away the soil, and cutting them off close to the root.

American Blight (*Schizoneura lanigera*).—This woolly aphis chiefly confines its attacks to the Apple in old orchards, and, as with most other insect pests, dry, warm weather conduces to rapid increase, means should be taken forthwith to exterminate the aphides; they are mostly to be found on the stems and older branches, where the crevices in the bark abound. An efficacious means of ridding a tree is to scrub all infested parts with soft-soap or Gishurst Compound, using about 3 oz. of either to 1 gallon of hot water, working it up to a lather, and applying it with a moderately stiff scrubbing-brush. Syringing the trees with any of the usual insecticides may also be practised, the Quassia extract, in which soap is also dissolved, being a good one for this purpose. The soapy lather should be used on the old wood only. In the winter season various remedies may be safely applied, but at the present season less strong insecticides can only be employed. Heavy syringing by means of the garden-engine and Quassia-water does no harm to the young growth, and it certainly clears a tree of great numbers, and a dressing of freshly-slaked lime applied to the ground, and a good trampling afterwards, will finish off those washed off the tree. In bad attacks the aphis may be found on the roots near the surface, and these should be laid bare, and the soil drenched with soapsuds, returning the soil directly afterwards. By this means great numbers are killed; but the dressing ought to be repeated thrice a year at the least.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Caladiums.—If specimens of a large size are wished for, the plants should be shifted into larger flower-pots as soon as the roots have permeated the soil of the previous potting in every direction, affording them a compost consisting of equal proportions of fibry turf, peat, and flaky leaf-soil, together with a small quantity of dry cow-manure which has been passed through a half-inch meshed sieve, and abundance of coarse sharp sand, the turf and peat being made use of in as lumpy a condition as the extent of the shift will admit. A moist atmosphere should be maintained about the plants, but these should not be syringed overhead, as the deposit from almost all kinds of water spoils the appearance of the foliage. Shading should be afforded only during very bright sunshine. [Some gardeners never shade these plants. Ed.]

Nerines.—These autumn-flowering bulbs are now entering the resting period, and will need only an occasional application of water till the foliage dies down, when no more should be afforded. In the dry state the bulbs may be placed in a cold frame, or upon a greenhouse shelf, exposed to the full sunshine until the autumn. If the plants are placed in a frame the light may be removed during fine weather. The plants should be kept quite dry until signs of starting into growth are apparent in the autumn, at which time any repotting that may be necessary should be carried out.

Miscellaneous.—Let the points of Euphorbia jacquiniæflora cuttings, when they have taken root and began to grow, be pinched out once only, and shift them into somewhat larger pots after they have broken afresh. Also take the points out of Hibiscus Manihot when the seedlings are 3 or 4 inches high. Stop the shoots of Bouvardias, Manettia, Libonias, Ixoras, Tecoma Smithi, &c., occasionally, to induce a bushy habit. Remove all flower-buds, except the terminal one, on Souvenir de la Malmaison Carnations, if blooms of extra large size are required.

THE KITCHEN GARDEN.

By H. Markham, Gardener at Wrotham Park, Barnet.

Tomatos.—Let these plants be kept progressing, and make the growth sturdy by affording them ventilation in good amount, and do not deprive them of root-space. At one time gardeners believed that this plant fruited best when it was pot-bound and starved; but my experience has shown me that the best results are obtained from plants that are well treated from the first. The ground at the foot of the walls against which Tomato plants will be planted should be dug deeply, after dressing it with a fair quantity of short, decayed stable-dung, lime-rubble, and fresh soil, these additions being well mixed with the staple, and the whole made very firm. Strong, well-hardened-off plants may now be put out in the warmer parts of the country, some protection being afforded if frost threatens. In less forward parts the end of the month will be early enough to plant.

Celery.—Those plants which were pricked off some time ago will now be fit for planting at 6 in. apart, on a well-prepared border, the plants being carefully handled. The nursery-bed should be rendered fit for the reception of the plants by mixing decayed manure or leaf-mould with the upper layer of soil, and making a fine tilth, a small quantity of soot being finally sprinkled over the surface. Afford the beds good applications of water in bright weather, and slightly shade them for a few hours daily during the first week. The seedlings of Leicester Red, a good late variety, being now large enough, should be pricked out before they become spindly and weak. Before taking them out of the seed-bed, soak the latter with clear water, and also the nursery-bed. If aphides infest the plants, apply Quassia-water or soap-suds with a syringe.

Vegetables.—It is good practice to cut or remove all sorts of vegetables required for the day before the sun gets powerful, as then the quality is finer, especially so in the case of Cauliflowers, Lettuce, and Coleworts. If they are to be sent to a distance by rail or other conveyance, it is very essential that vegetables should not be allowed to wither from exposure to wind or sun, but that they should be placed in a cool, moist place till they are packed in the hampers. The coarser vegetables should be collected first, and the finer ones at the last moment. These may be laid out separately, and sprinkled slightly with clean water if the weather is very hot. Vegetables to be sent by an early train must be gathered the previous evening, and covered with a damp mat, the packing taking place in the morning. Asparagus, French Beans, herbs, &c., should all be neatly tied up with bast in bundles, and should be placed at the tops of the hamper, with the edible tips of the first-named made secure against bruising.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Melons.—Periodical sowings in number according to the demand and space for planting should be made fortnightly. The pit or house now occupied by the early crop can be utilised for a late summer one, sowing, and forwarding plants in pots, so as to have them strong by the time all the early fruits are cut. New soil should be substituted for the old before planting out a new stock of plants. The soil cannot in reason be made too firm. Some soils favour canker in the stem more than others, not only giving a deal of trouble, but requiring special treatment from the early stages onward. Portland cement is an excellent antidote when canker is present in the stem, rubbing it well into the affected parts after they have been scraped with the back of a pocket-knife. Plants in flower, and others approaching that stage, will need immediate attention in respect to the pollination of the female blooms. Regulate the growth by pinching, so as to obtain the required number of female blooms to open at the same time. If large fruits are desired, liberal feeding with liquid and artificial manures must be given, but the utmost care should be exercised in regard to the quantity applied. Green and black-fly can be kept under by syringing with insecticides, quassia extract being particularly effectual and safe in use; or by fumigating.

Melons: later crops.—The fruits, if they have attained the size of a cricket-ball, will need support, and nets made expressly for the purpose are the best, although a three-cornered or a square piece of board suspended by small pieces of string are in common use. To prevent the decay of the fruit, a hole as big as a penny should be cut in the middle of each piece, or the board may be hung so as to slightly incline to one side, so as to get rid of the moisture falling on it.

Early Figs in Pots.—These trees will have been affording ripe fruits, but the production will soon cease, unless there are numerous trees. After a crop is finished, the entire surface soil which can be readily removed should be taken away, and a top-dressing applied of fresh loam, lime-rubble, and a sprinkling of some artificial fruit-manure, for the encouragement of root-activity, and assisting the development of a second crop of fruits, which are now in an advanced stage. Diluted liquid-manure may be applied twice or thrice each week, if the pots are well filled with roots. The stopping of growths must be frequently attended to so as to get the wood matured, and embryo Figs to form. In regard to moisture, do not be misled by the damp appearance of the top-dressing, whilst the soil below it may be comparatively dry.

Figs Planted Out.—The fruits on such as were started early will be approaching ripeness in some instances, and syringing should be less frequent, and a dryer atmosphere obtained by increasing the ventilation of the house, and doing less damping down. A thorough application of water should be afforded the borders, if the trees are long-established ones, and the border is restricted in area. This matter ought to receive attention before or about the time of the final swelling of the fruit. In the case of old trees, liquid-manure is of much benefit to the present and to succeeding crops. Figs are exempt from insect-pests, though sometimes scale and red-spider infest the stems and leaves. Sponging with soapy-water forms the best remedy. Figs improve by being kept for a day or two after gathering before being sent to table. Trees in cool houses should once a week have the shoots stopped and regulated according to the amount of wall-space, as crowding of shoots should be carefully avoided. Large trees are the better for being stopped at short intervals of time, as then a succession of fruit is easily obtained. It is better to stop often than to rob the trees of a great lot of foliage at one or two operations, a method that leads to fruit dropping. Those that have filled the trellis, and are fruited on the spur principle, will require the minor laterals to be pinched back, as they are made, to within one joint of the base, the aim being the exposure to sunlight of every leaf made, so that growth may become fruitful.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Cypripediums concolor, Godefroyæ, and niveum.—Any plants of this difficult section of the Slipper family that require to be re-potted or top-dressed should be given attention at once, so that they may have the whole of the season in which to make what progress they will. These species may be grown in pots or pans, but the latter should not have any side perforations; and instead of using potsherds for drainage, substitute pieces of limestone, old lime-mortar, or tufa. When re-potting, hold the plant in position, and work in the limestone, mortar, or tufa amongst the roots to within an inch of the rim, filling the remaining space with a compost of one-third fibry loam, one of peat, and one of sphagnum-moss. The base of the plant should be raised well above the level of the pot. Subsequently the plants may be placed in a position near the roof glass in the hottest house, where no water from any source is likely to get into the growths. The water necessary for the plants should be supplied by dipping the pots to their rims, to prevent a chance of water lodging in the axils of the leaves. A moderate amount of shade is required by the plants during bright weather. The chief danger lies in giving water too often during the winter, and in the lodgment of water in the axils of the leaves.

C. Godefroyæ leucochilum is more easy of cultivation in hot-house than others of the section. It should be grown in pans of moderate depth, suspended from the roof of a warm-house, and where drip does not accumulate. An ordinary Orchid compost, with crocks for drainage, is all that the plant requires. Afford water sparingly, and rather more shade than is advised for the above-named species.

C. bellatulum.—After repeated trials to grow C. bellatulum in a high temperature, we now place our plants in an intermediate-house, in which Miltonia vexillaria is grown, and judging by two years' experience the result is satisfactory. When once established, this species should not be disturbed until absolutely necessary. Newly-imported plants should be thoroughly washed, and then hung head downwards for a week or so. Afterwards place them in pans as advised for C. concolor, suspending them in a moderately shady house with a temperature ranging between 58° to 63°. Established plants may occasionally be re-surfaced, but as they do not require much water, the soil keeps in a good state for a long period of time. C. bellatulum album is grown here suspended under the central ridge of a small Cattleya-house, and, contrary to most albinos, it thrives better than the type.

C. bellatulum hybrids. — These hybrids are freer-growing, and more easily cultivated in glass-houses than are their parents. But it is necessary to bear in mind the characteristics of the parents, whether they thrive in a warm or intermediate temperature, whether they are impatient of water lodging in their growths, or require dense or moderate shade. Speaking generally, the hybrids should be afforded a temperature of 65° to 70°; the light should not be very strong, nor the atmosphere clammy, but it should be moist. The leaves are very brittle, and must be handled with extreme care.

Dendrobium Phalænopsis, &c.—The various forms of this beautiful species, with D. bigibbum, D. Statterianum, D. undulatum, D. Goldei, D. Leeanum, and others of this section, are now growing freely, and need to be looked over frequently, so that as soon as roots are seen emerging from the base of the new growths, the necessary repotting or surfacing may be done. These Dendrobiums require all the light and heat of the East Indian-house, and should only be shaded for a few hours on very bright days. Plant them in small pans, using a very small quantity of peat and sphagnum-moss. When rooting freely, copious applications of water are necessary, and the syringe should be used amongst them morning and afternoon if evaporation be rapid.

THE APIARY.

By Expert.

Building up Stocks in Spring. — It is not too soon to begin preparing for the early honey season, which is now close at hand. We have already had encouraging reports of carefully-attended-to hives being "full of bees and brood," on the strength of which condition more than one of our readers located in Kent have already made up their minds to enter honey of 1899 for the "Royal" Show at Maidstone in June next. It is certainly promising to hear, as we did on the 20th ult., of hives found on inspection "with bees between every one of the ten frames;" but we fear this will be rather the exception than the rule. However, it is now quite time to set about doing what we can to get the bees forward by careful and judicious feeding wherever there is the slightest suspicion regarding scarcity of stores. The incoming of food in spring means increase of brood in the hives, and although we do not advocate entire reliance on candy-feeding at this season, personal experience has proved beyond doubt that the judicious giving of a cake or two of soft candy as a stimulative supplement to stores already in the hives is the best of all methods of brood-spreading, not only because of its increasing the brood, but of avoiding the too frequent mischief arising from parting frames of brood and the insertion of empty combs in their stead early in the season.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	May 22	Bank Holiday.
WEDNESDAY,	May 24	Linnean Society, Anniversary Meeting. Bath and West and Southern Counties Show at Exeter (5 days). York Florists' Exhibition of Tulips, &c.
FRIDAY,	May 26	Royal Botanic Society, Lecture.

SALES.

WEDNESDAY,	May 24	Clearance Sale of 60,000 Bedding and other Plants, at the High Street Nurseries, Crawley, by order of Mr. E. Yetman, by Protheroe & Morris.
THURSDAY,	May 25	Clearance Sale of Orchids, Stove and Greenhouse Plants, at The Gardens, Lower Cheam House, Sutton, by order of the Executors of the late N. L. Antrobus, Esq., by Protheroe & Morris.
FRIDAY,	May 26	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period May 7 to May 13, 1899. Height above sea-level 24 feet.

1899. May 7 to May 13.	Direction of Wind.	Temperature of the Air. At 9 a.m. Dry Bulb.	Temperature of the Air. At 9 a.m. Wet Bulb.	Temperature of the Air. Day. Highest.	Temperature of the Air. Night. Lowest.	Rainfall.	Temperature of the Soil at 9 a.m. At 1-foot deep.	Temperature of the Soil at 9 a.m. At 2-feet deep.	Temperature of the Soil at 9 a.m. At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 7	E.N.E.	53·5	46·1	61·5	37·1	...	48·9	49·6	48·9	28·1
Mon. 8	N.N.E.	59·5	51·8	64·2	42·6	...	50·5	49·8	48·9	36·0
Tues. 9	N.N.W.	49·7	49·5	58·5	46·9	...	52·5	50·5	48·9	44·2
Wed. 10	N.N.W.	54·7	50·1	61·9	39·0	...	51·9	50·8	49·1	30·8
Thu. 11	N.N.W.	49·4	47·7	66·0	40·3	...	52·8	51·3	49·1	34·1
Fri. 12	S.S.W.	55·1	50·6	62·9	46·8	...	54·5	51·8	49·5	39·3
Sat. 13	S.S.W.	51·8	48·5	61·8	45·7	0·01	54·5	52·3	49·7	38·5
Means...	...	53·4	49·2	62·5	42·6	Tot. 0·01	52·2	50·9	49·2	35·9

Remarks.—The weather has been dull and dry, with variable cold winds. The only measurable quantity of rain which has fallen this month was on the 13th.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—56·4°.

Actual Temperatures:—

London.—*May* 17 (12 p.m.): Max. 56°; Min. 50°.

Provinces.—*May* 17 (6 p.m.): Max. 62°, Ipswich; Min. 48°, Hebrides.

Malcolm Dunn.

The unexpected death of Malcolm Dunn on Thursday, the 11th inst., at the age of 61 years, which it was our painful duty to have to record last week, as we were going to press, removes from among us one of the most prominent, conscientious, and energetic of our gardeners, one ever eager to give his aid in all matters connected with gardening in its practical aspects, or in its philanthropic connections.

He was in his usual health and vigour on Tuesday throughout the day, and it is thought that he caught cold in returning from a meeting in Dalkeith on Tuesday night. All that seems certainly known is, that on Wednesday morning he complained of feeling unwell, with acute internal pain. His medical adviser was at once summoned, and made several visits, remaining with him until an early hour on the following morning, when Mr. Dunn passed away.

Mr. Dunn, it is generally supposed, was a native of Crieff, being a son of a well-known coach-driver in the town and district. He was educated at the parish school in Crieff, and commenced his horticultural career by serving an apprenticeship in Strathallan Gardens, Perthshire, with the late Mr. Thomson. Subsequently, after removing to England, he was employed in Trentham Gardens, Staffordshire; and after spending some time in Messrs. Veitch's nursery, Chelsea, he was sent by the late Mr. Henderson, who was gardener at Trentham at the time (1860), to be foreman under Mr. J. W. Miller, one of the best Peach-growers of that day, and now gardener at Ruxley Lodge, Esher. This was at Eardiston House, the seat of Sir William Smith, Bart., Tenbury, Worcestershire. Leaving Mr. Miller, Malcolm Dunn was engaged as foreman at Sprotborough Hall, Yorkshire. In 1865 he was appointed to take charge of the gardens at Powerscourt, Lord Powerscourt's estate in Wicklow, then being improved and remodelled. Here Dunn, in conjunction with another gardener, carried out great alterations in the flower-garden and pleasure-grounds, planting Conifers extensively.

Dunn, previously known as a practical gardener of high repute, became more widely known by the successful manner in which he combated the Phylloxera vastatrix in the vineries of Lord Powerscourt. Complete and lengthened submersion of the borders was the method adopted, and where circumstances allow of its being done, it still continues to be the most efficacious method.

After a stay of several years at Powerscourt, he was engaged by the Duke of Buccleuch as head gardener at Dalkeith Palace, in November, 1871, in succession to Mr. William Thomson, late of the Vineyard Nursery, Clovenfords, who had resigned.

As the successor to such great gardeners as McDonald, Charles McIntosh, and William Thomson, it is sufficient praise to say that Malcolm Dunn sustained the high level of their reputation at Dalkeith.

A considerable alteration that he effected at Dalkeith was hardly completed before his death. This was the substitution, by Messrs. Mackenzie & Moncur, of three powerful tubular steel boilers for about twenty smaller ones, that were required to heat the glass-houses. In ordinary weather two of these will be sufficient. The saving in labour and fuel thus obtained is enormous. In fuel, for instance, the quantity saved daily is three and a half tons. The flues have been so constructed that there is no draught beyond the boilers, and consequently there is no waste.

As a landscape-gardener he possessed good taste, and an eye which detected in a moment the smallest mistake. He had an extensive knowledge of plants in regard to nomenclature, habits, and habitat, and could advise what was best suited to any given locality.

As a pomologist he had an extensive knowledge of varieties; and the correctness of the nursery fruit catalogues of the present day is largely due to his advice, and to the prominent part he took in assisting at and in the promotion of the several fruit conferences of the last twenty-five years.

His labours in connection with the Scottish Arboricultural Society, of which he became a member twenty-five years ago, were soon made evident in his strenuous efforts to make it a powerful factor in advancing the science of forestry, formerly much neglected. He was an enthusiastic supporter of the scheme for a Forestry School for Scotland. Mr. Dunn took a leading part in the establishment and successful carrying through of the great forestry exhibition in Edinburgh in 1884, and was always present at the excursions of the Scottish Arboricultural Society, whether at home or abroad. He was looking forward to a visit to the great French exhibition, and the French woods and forests, in the year 1900.

He was on the Council of the Royal Caledonian Horticultural Society; and his services to the Scottish Horticultural Association are well known. The last-named Association was instituted in Edinburgh in 1877, and Dunn filled the office of President for the first five years.

To the Conifer Congress, held at Chiswick in the autumn of 1891, Dunn lent unstinted aid, collecting statistics from Scottish sources not easily accessible to others, and himself supplying an extensive collection of specimens. To him we also were indebted for details concerning the many trees planted by Her Majesty, and which were published at the time of the second Jubilee festivities.

As regards his contributions to our columns, they were more numerous than might be thought—such was his retiring disposition that he persistently shrank from attaching his signature to his contributions, and it was only rarely that we could induce him to sign his name to his communications. This reticence arose not only from natural modesty, but from his earnest desire to be accurate even in minor details. No matter whether a statement was in all probability substantially true, if he could not himself verify it, he would not lend his name to it. This striving for accuracy made him a keen but just, and never unkindly critic of others who were, and are, compelled by circumstances, to write under pressure.

Qualities such as these rendered him most valuable as a judge at exhibitions, and as a general counsellor and adviser in matters horticultural. His published communications in these columns are relatively few in comparison to the critical and wise counsels with which we were privately favoured. One communication, which must have been the last ever penned by him, appears in our issue to-day. Indeed, to us his loss is a severe one, as we have had occasion for many years to value his assistance, and his conscientious impartial judgments on men and things.

Mr. Dunn was elected a Veitch Medallist in 1896, when the other persons so recognised were F. W. Burbidge, H. L. de Vilmorin, and Professor Sargent; and he was the recipient of the Niel Prize in horticulture. His reputation as a gardener led also to his nomination by the Royal Horticultural Society as a Victoria Medallist. His death forms the first break in the ranks of that august body, and it will be by no means easy to fill his place.

Mr. Dunn having never married, had fewer home ties than most men, but his sympathies, time, and money, were unreservedly given to horticulture. His house was an open one to every gardener, young or old, that sought his aid or advice, and whether an applicant at Dalkeith was a mature gardener or an apprentice, if he held proper and sufficient testimonials, he was certain to obtain the active help of Malcolm Dunn. Such invaluable assistance, given in a variety of ways, was not afforded without pecuniary loss to the deceased, who was never the least concerned to save money, and who has probably died a comparatively poor man.

Though emphatically a Scottish gardener of the best type, his was no provincial patriotism. His training and his experience had been gained in each of the three kingdoms, and his sympathies were wide in proportion. He extended the same aid and support to the metropolitan organisations that he did to those north of the Tweed, and was, perhaps, almost as well known in London as in Edinburgh, which is saying a great deal. He took a warm interest in the Gardeners' Orphan Fund, the Gardeners' Benevolent Institution, and other garden charities.

The deceased was interred at Dalkeith cemetery on Saturday last in the presence of a large and sympathetic gathering. An extraordinary coincidence in connection with Mr. Dunn's death was the decease of his stepmother upon the same day, at King Street, Crieff. She was seventy-eight years of age, and was observed to fall while walking in her garden.

YORKSHIRE NATURALISTS' UNION. — The 143rd meeting will be held at Dent, for the investigation of the valley of the Dee, the northern slopes of Whernside, Gragreth, Holme Fell, &c., on Whit Monday, May 22, 1899. The Hon. Secretary, W. DENISON ROEBUCK, F.L.S., 259, Hyde Park Road, Leeds, will furnish all particulars on application.

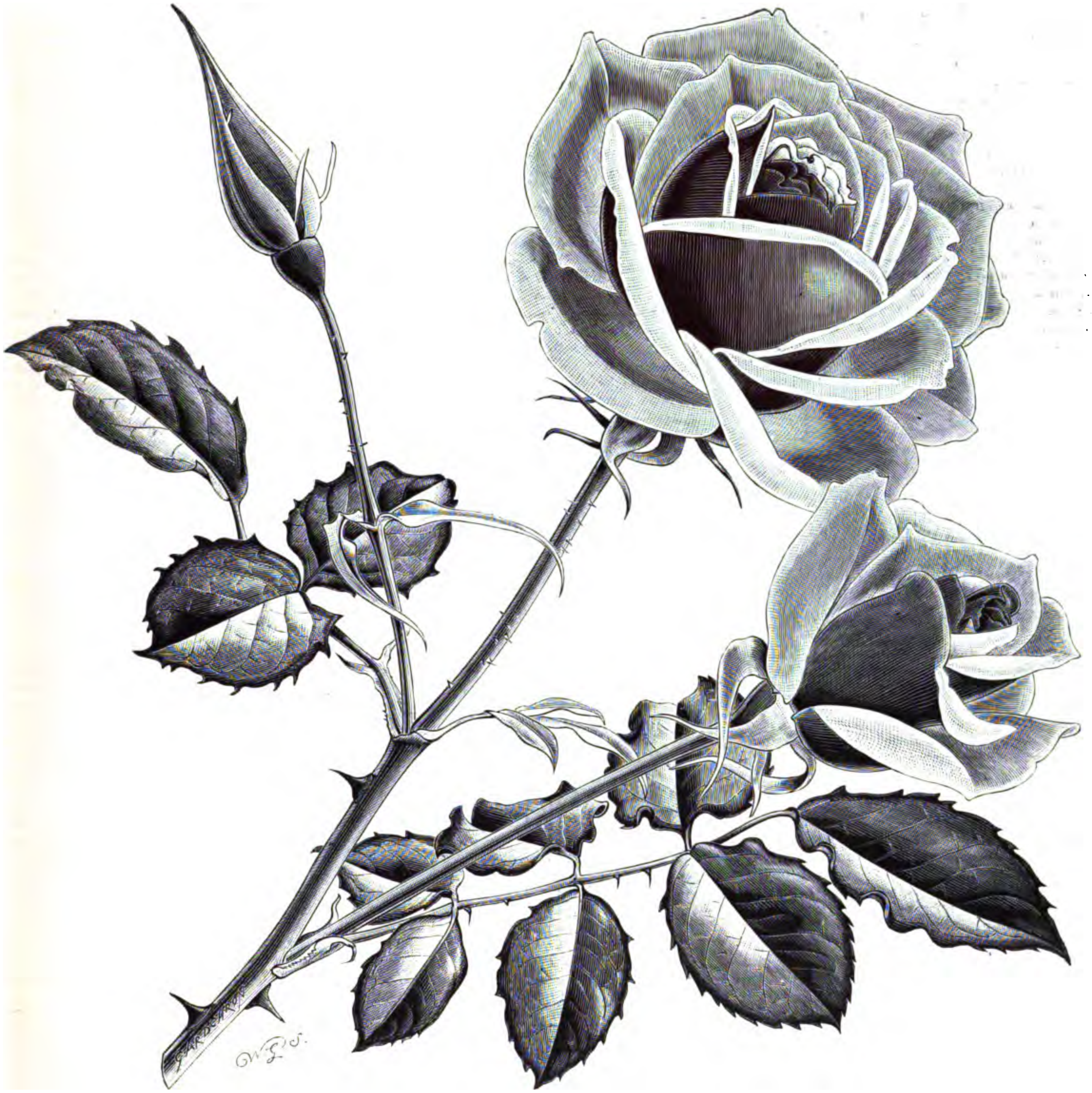

FIG. 117.—TEA ROSE "SUNRISE": COLOUR COPPERY-RED AND YELLOW. (SEE P. 324.)

A BUNCH OF TULIPS.—Mr. W. B. HARTLAND, of Cork, has sent us a bunch of Tulips of great variety and purity of colour. Among them are T. Didieri var. alba, with flower-segments 2⅜ inches long, oblong-pointed, creamy-white. The inner segments are broad and slightly notched.

Picotee has outer creamy-white segments, broad at the base, and gradually tapering to an acute point. The edges are marked by a very narrow pinkish-line, which has suggested the name.

Ixioides has segments tapering to both ends, and of a canary-yellow colour with a deep purplish-black blotch at the base.

Columbus has broadly oblong segments, tapering to each end with a yellow ground, feathered and flamed with crimson; eye yellow.

Fawn has flowers of relatively small size, the segments being 2¼ inches long, oblong, rounded at both ends; inner segments of the same size and form, and fawn-coloured flushed with pink, and with a yellow blotch at the base—a peculiarly beautiful flower.

Fairy Queen has the flower-segments nearly 3 inches long, tapering to the base, rounded at the apex; yellow at the margins, pale lilac in the centre, a curious combination, but nevertheless a beautiful one from the softness and delicacy of the tints.

John Ruskin is very similar, but the lilac tint is more pronounced whilst the yellow is paler. But for the flush of yellow the flower resembles in colour that of Magnolia Soulangeana. There are various others, some self-coloured orange-crimson; others white, feathered and flamed with rosy-crimson, but unfortunately the labels were displaced, and we fear to misname them.

KIND AND VARIETY.—The following letter was the last we received from Mr. DUNN. We received it only a day or two before his death: "In the new edition, or 1899 Code of *Rules for Judging*, issued by the Royal Horticultural Society, there appears under 'General Rules,' on p. 6, a lengthy definition of the use of the words 'kind' and 'variety,' for exhibition purposes. The application of these terms is shown by easily understood examples, and when exhibitors know the correct meaning of 'kind' and 'variety' it will save much unseemly wrangling at flower shows. All reasonable people will cordially approve of this attempt to solve a troublesome point; but surely the Royal Horticultural Society has been mixing its metaphors in the following quotation, which appears in the middle of paragraph 3. 'As a general rule, for the purpose of exhibiting, all natural *genera* are *kinds*, and all variations within a genus are *varieties*.' This clearly defines the terms 'genera' and 'kinds' to be *synonymous!* and as 'all variations within a genus,' according to this 'General Rule,' are in future to be treated as 'varieties,' the time-honoured terms of *genera* and *species*, hitherto in vogue among practical horticulturists, as well as botanical scientists, must, as a matter of course, disappear from horticultural prize schedules. If that is the intention it is hard to see where the necessity arose for the invention of the new terms and their use, in the sense of the words quoted above, will not diminish the risk of misunderstandings at horticultural exhibitions. Far better would it be to retain the old and well-understood terms of *genus* and *species*, and use the words 'kinds' and 'variety' in the way they have hitherto been employed, to distinguish the divisions and subdivisions of a species. *North Briton, May* 6."

ROSE SHOW AND CONGRESS OF GERMAN ROSE GROWERS AT STUTGARD.—This important event will take place in the Concert Hall of Stutgard from June 16 to 18 next, the Congress being held on the first day. Exhibition objects have to be delivered not later than 10 P.M., June 15, and cut blooms, bouquets, &c., on June 16, not later than 8 A.M. We note a class in which twenty-four varieties of some of our finest Roses are required to be shown to the number of ten blooms, and these furnished with long stalks.

THE FLOWERING OF PEACHES, NECTARINES, AND APRICOTS.—It is a matter of common remark this year that the fruit-trees on south walls and in glass-houses are not showing so much bloom as the conditions prevailing last autumn in this country would warrant us in supposing would have been the case. It is the opinion of many good gardeners that this failure is to be traced to the excessive heat, bright sunshine, and general lack of moisture characteristic of the summer and autumn of last year. The same lack of bloom occurred in Lilac prepared for forcing, as was noticed recently in these pages. The ill effects of weather conditions such as those experienced in 1898 could be in great measure averted by gardeners employing Bamboo or lath-blinds, or even double and treble fish-netting over the trees growing on sunny aspects, letting them down about 11 A.M. and taking them off about 2.30, and following out the practice on hot days only during the months of August and September. In conjunction with this shading of the trees, the borders should be kept in a fairly moist condition.

SPRAYING AND WASHING HOP-BINE, FRUIT-TREES, AND BUSHES.—A new and improved system for washing Hop and fruit-trees from blight and insect-pests has just been tested on some large fruit plantations, with results entirely satisfactory. It is one that has been introduced by Messrs. MERRYWEATHER & SONS, and is an advance upon anything that has yet been done in this line. A portable steam pumping-engine of the firm's well-known "Valiant" type is employed to pump the specially-prepared wash from the tank, and deliver it through lengths of iron pipe or flexible hose to several points, from which branches are taken, and suitable outlets and valves provided. As many as twenty-four powerful jets can be utilised at one time, and the blighted foliage thoroughly and cheaply cleansed. The first trial took place at the establishment of Mr. BEST, Suckley, Worcester, and spray was thrown well over the tops of Plum-trees more than 20 feet in height. Mr. BEST expressed himself as being quite satisfied with the way in which the plant did its work. The next trial was on the Toddington Orchard Co.'s plantation, under the supervision of Mr. C. D. WISE, the managing director, employing an engine of similar size and power. Here the wash was pumped through a pipe 500 yards in length (the pipe was 1½ inch), up a rise of 150 feet, with complete success. The application to Gooseberry-bushes was also made, the spraying being effected by a spreading nozzle. Mr. WISE and the other gentlemen present expressed their appreciation of the efficient manner in which the engine did its work. The third trial was held at Mr. ISAAC READER'S plantations at Paddock Wood. Here also all the tests were quite satisfactory, powerful jets being delivered through 1600 feet of piping. Mr. READER expressed his high approval of the system, and remarked that the plant was what had been wanted for many years, and that it was impossible to spray large trees by any other method. The apparatus is readily portable, two men being well able to wheel the engine, boiler, and furnace to any desired point. The engine can be made to serve as a fire-engine, and by throwing the pump out of gear it is available for driving farming or other machinery, and altogether forms a very valuable addition to any large plantation, combining cheapness in first cost with economy and efficiency in working. Another important feature is the arrangement of the suction-pipes so as to draw its supply of water and chemical from separate tanks in the required proportion.

THE EDINBURGH SEED TRADE—A PRESENTATION.—A smoking concert was held on the 12th inst. in the West End Café, 129, Princes Street, under the presidency of M. PETER DREW, at which Mr. ALEXANDER CHALMERS, the secretary for the trade annual gathering, was presented, on the occasion of his wedding, with a marble clock, and a massive gold albert, as a wedding gift; also a gold bracelet and brooch, set with diamonds and pearls, for his affianced bride. These were accompanied by, an illuminated address, containing the names of all the subscribers.

PRESENTATION TO MR. J. WALLIS.—A few weeks ago we announced that the friends of Mr. J. WALLIS, who has recently left Keele Hall Gardens, Staffordshire, after twenty years of service there, determined to present him with a testimonial as an expression of their esteem. The presentation was made on the 9th inst., and was accompanied by a cheque. Mr. WALLIS much appreciates the kindness of his gardening friends in this matter, but is unable to thank the subscribers individually.

METROPOLITAN PARKS AND OPEN SPACES.—At a meeting on Tuesday of the London County Council, the report of the Parks and Open Spaces Committee, recommending that £3000 should be contributed towards the sum required for the purchase of the Dollis Hill Estate for the use of the public, was agreed to without a division. This charming rural spot may be described as having for years been the "Saturday to Monday resort" of Mr. GLADSTONE. The place will probably be named Gladstone Park, though possibly the old name would be in harmony with the nature of the surroundings, and their association with the illustrious statesman. It may be noted that at the same meeting plans were approved for a large addition to the industrial dwellings of the metropolis in this instance, on the Millbank estate, near the Tate Gallery. It is to be hoped that some space may be found for a little grass, with specimen trees, and seats. These would be greatly appreciated by all who can value the moral and physical advantages of bright and roomy dwellings.

OCHTERTYRE ESTATE, PERTHSHIRE.—On May 14 a presentation was made by the *employés* upon the Scottish estate to Mr. DAVID KEATH MURRAY, who is leaving the district, and retiring from the position of factor. Mr. MURRAY is a brother of the proprietor, Sir P. K. MURRAY.

THE LIZARD ORCHID.—A valuable and interesting floral discovery has been made by the authorities at the Kent and Sussex Agricultural College at Wye, near Ashford, Kent. For forty years the Lizard Orchid has been lost to the British flora, but it has been re-discovered on the Kentish downs, where fifteen out of the twenty varieties of British Orchids have been found. We greatly regret that the Wye authorities have published the fact.

A CHARMING JAPANESE CHERRY.—We congratulate Mr. JAS. H. VEITCH upon the distinct and beautiful variety of Cerasus Pseudo-Cerasus, shown at the Meeting of the Royal Horticultural Society on Tuesday last. This plant, which Mr. VEITCH found when visiting Japan a few years ago, is said to come into bloom three weeks later than the variety Watereri. It is very much deeper coloured than that variety, being a magenta shade of pink, and the foliage is more effective from its bronzy appearance. The plant will constitute another decided acquisition to our hardy flowering trees and shrubs.

MARRIAGE OF MR. P. JACKMAN.—On May 11, at Pyrford Church, Mr. PERCY JACKMAN was married to Miss BLANCHE SHEARS; a large company assembled at the church, and the costly and numerous presents bore testimony to the general esteem in which both parties were held. Mr. P. JACKMAN is the junior partner in the well-known Woking firm of nurserymen.

WARM WEATHER IN THE STATES.—On May 2, summer weather, with the thermometer above the eighties, had followed the recent Arctic spell. At Buffalo it was still warmer, 90° in the shade. Of course, vegetation has wonderfully advanced. There is general lamentation regarding the scarcity of Pansies, due to the severe frosts without snow. One man, we read, planted 140,000 and lost 80,000.

CHESTNUTS.—Our contemporary, *American Gardening*, for April 22 last, contains an interesting article by G. HAROLD POWER, being the fourth in a series upon Commercial Chestnut culture. It is pointed out that European and American varieties derived from them will require immense improvement before they are of much commercial value. Alpha, a Japanese variety, sells sometimes for 12 dols. per bushel in the second week in September. A list of twenty-eight varieties, Japanese, European, and selected, is given, together with short descriptive notes.

RICHMOND HORTICULTURAL SOCIETY.—We have received a schedule of prizes to be offered at the Annual Show, which takes place in the Old Deer Park on June 28. This is usually one of the best of the suburban exhibitions, and we have no doubt the forthcoming display will be equal to those that have preceded it.

TO ASCERTAIN IF A SOIL CONTAINS LIME.—If a teaspoonful of soil be stirred into a glass of water, to which a few drops of ammonia have been added, and the whole set aside for some hours, the liquid which remains at the top will be nearly colourless; but where lime and magnesia are lacking in a soil, the liquid has usually a dark brown or black appearance, the intensity of colour depending upon the amount of soil taken, and, of course, upon its need of lime.

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SOUTH AFRICAN NOTES.

JOUBERT PARK, JOHANNESBURG.

WHEN the writer first came here, Joubert Park was a flat, ploughed field, 17 acres in extent, and quite destitute of vegetation. Now, after six years labour, in face of many difficulties — frosts, droughts, floods, hail, locusts, and political troubles, the place begins to wear a finished look. A hedge of Cupressus macrocarpa was first planted right round next the fence; within this a shelter-belt of Eucalyptus globulus and E. viminalis, Acacias dealbata, melanoxylon and mollissima, and Pinus insignis, to break the fearful dust-storms. After these had got up some 10 feet, Oaks, Cypress, Junipers, Casuarinas, Thuias, and tender Eucalypti were planted. All grew well, and within this much-needed shelter the flower garden was laid out, and lawns laid down according to plan. A very large and varied collection of flowers, flowering plants, shrubs, and bulbs, was put out, not with uniform success, since very many were quite new to the country, and frost and drought proved too much for some.

In the middle of the Park a large fountain was erected three years ago, the base of which rests on rusticated stone, and the flat upper surface is decorated with patterns of black shale and white quartz crushed small. The water edge is planted with Montbretias, Arums, Sparaxis pendula, Iris Kæmpferi, and the old I. chinensis Phormium tenax, Tritomas in variety, and Schizostylis coccinea, all of which do remarkably well. Last winter we had a very severe frost, water-taps in the open were burst, and long icicles remained for several days hanging from the upper basin, yet no losses were observed amongst the above named plants. Round the fountain-basin are four arches leading to the lawns; a bed of Tuberoses in the background. The arches are planted with Ipomœa pentaphylla, Physianthus albens, Clematis brachiata, English Honeysuckle, Solanum jasminoides, and Passiflora cœrulea, which have formed a dense covering.

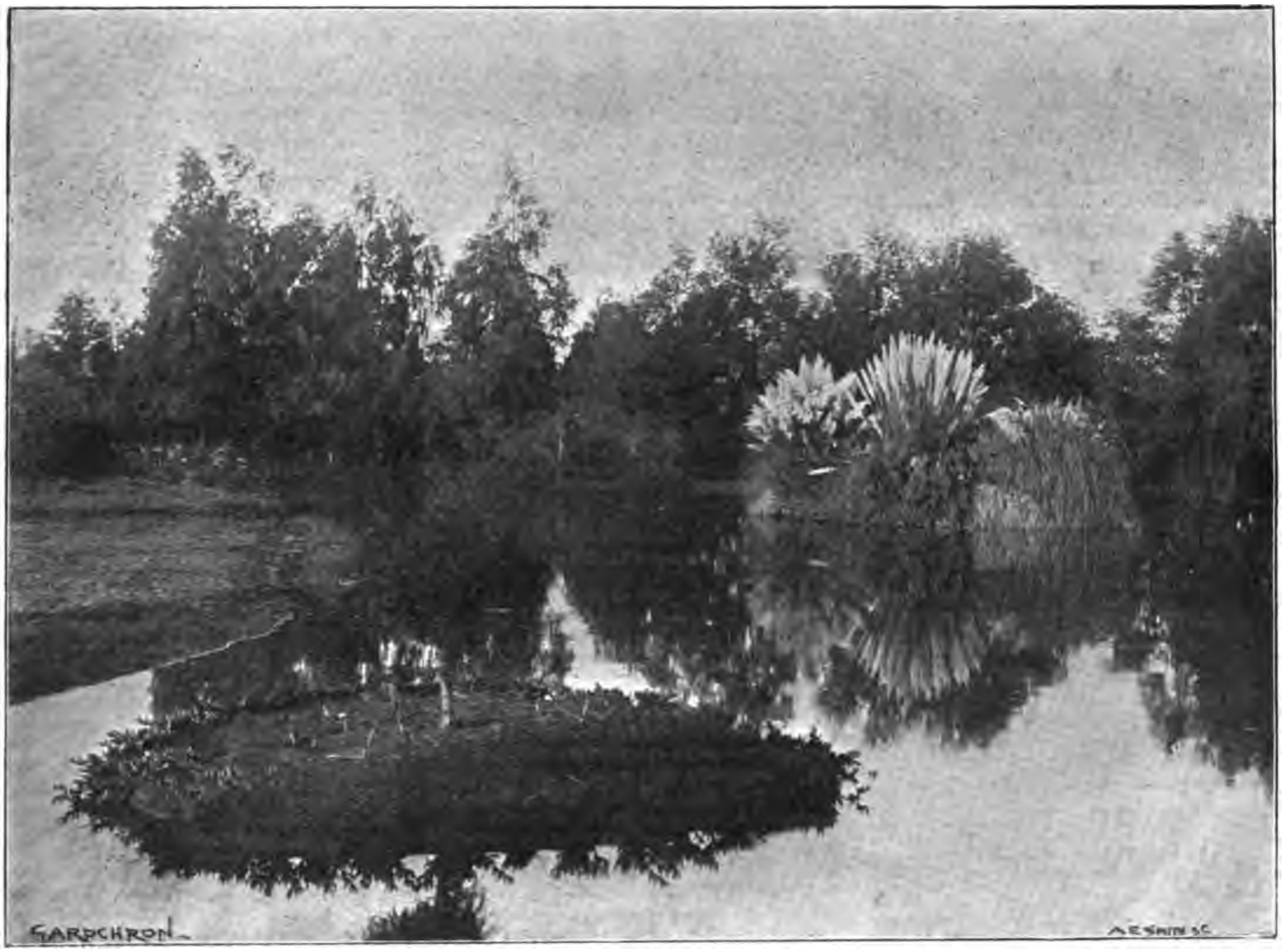

FIG. 118.—LAKE IN THE PUBLIC PARK, JOHANNESBURG, TRANSVAAL.

On the lower side of the park, a small lake has been formed (fig. 118), which is fed from the overflow of a fountain. The margins are planted with Weeping Willow, Hedychium Gardnerianum, Gunnera scabra, Coix lachryma, Crinum capense, Osmunda regalis, and small plants of Cyathea Dregei, as well as Agapanthus umbellatus, Arundo Donax, Lobelia cardinalis, and Gladiolus Papilio—all doing very well. In the lake we have Aponogeton distachyon, Nymphæa cœrulea, and some hardy hybrid Water-lilies flowering well. Nelumbium speciosum has been often raised from seed and planted out, but the young plants cannot withstand the first winter. On an island in the centre, Pampas Grass, Caladium esculentum, and Cannas, do very well. In the foreground is a small island with a tree of Taxodium distichum surrounded with Leichtlin's hybrid Tritomas, obtained from the generous raiser.

Two conservatories have been built, the smaller is 45 feet long by 18 and 15 feet high, heated by hotwater-pipes. A collection is grown of tropical Palms, Ferns, a few Orchids and flowering stove-plants. The larger house is 54 feet long by 24 feet broad and 20 feet high, and contains a fair collection of half hardy Tree-Ferns, Palms, and other plants which cannot be trusted outside, as Bamboos, Bougainvillea, Brugmansia, Cycads, Musa Ensete, &c. The whole upkeep of the Park is borne solely by the Town Council of Johannesburg, the annual vote being about £2000, of which £500 is for the water supplied by the Waterworks Company, at the very high rate of 3*s*. 6*d*. per 1000 gallons.

Situated as this town is, in the middle of a huge flat, treeless table-land—the High Veld—with no natural beauty, as woods, rivers, or mountains near, the Park is much frequented by the public. *R. W. Adlam, Curator, Joubert Park, Johannesburg, March* 9, 1899.

HOME CORRESPONDENCE.

THE LATE MR. M. DUNN, DALKEITH.—As a friend of over thirty years standing, I should deem it a privilege to publicly express my deep sense of the loss all horticulturists and arboriculturists alike have sustained by the demise of our dear friend. The late Mr. Dunn was born in the parish of Crail, in Fifeshire, where his father was a farmer. When comparatively young, his father removed to the neighbourhood of Perth, where at the parish school and academy he received his education. Having shown a predilection for horticulture, he was, at the age of fifteen, apprenticed as a gardener with the late Mr. Thomson, gardener at Strathallan Castle. On the completion of his apprenticeship, and after some time spent as journeyman, he moved south, and was fortunate in being admitted to the gardens at Trentham, then under the late Mr. Fleming, where he remained for some years, and where a similarity of temperament and energy with his master seemed to fully develop the latent enthusiasm of his nature. On leaving Trentham, he was in several good gardening places in England, notably at Sprotborough Hall, Doncaster, as foreman, and eventually was appointed head gardener at Erdiston, in Worcestershire. In 1865 he was appointed gardener to Viscount Powerscourt, at Powerscourt, co. Wicklow, where he had full scope for the exercise of his skill and energy in conducting extensive improvements in the gardens and grounds of that princely residence. The writer, having been appointed forester there at exactly the same time, had the benefit and pleasure of initiating a friendship with him which continued through life. Six years' close association with kindred tastes developed feelings of the warmest friendship and respect. From Powerscourt, Dunn was appointed, on the resignation of the late Mr. W. Thomson, as gardener at Dalkeith Palace in 1871. During the twenty-eight years that he was head gardener to the Duke of Buccleuch, and as he occupied what may be deemed the premier horticultural appointment in Scotland, he well sustained the traditions of that position. Having followed such men as Macdonald, McIntosh, and Thomson, he worthily maintained the reputation of Dalkeith, and none of his talented predecessors have done more for the advancement of horticulture and kindred sciences than he has done. Mr. Dunn as a practical gardener had few equals, and as a scientific gardener he took a premier place. His knowledge of botany, and kindred sciences, was extensive, and being possessed of a wonderful memory, and being a voracious reader he had the power of assimilating *ad libitum* every kind of professional literature as it appeared. With the science of forestry he was much identified; and having become a member of The Royal Scottish Arboricultural Society about twenty-five years ago, he very soon made his usual energy felt, in making it a powerful factor in promoting a science, before too much neglected. As a promoter and one of the executive committee of the first Forestry Exhibition in Edinburgh, he did much to secure its success, and yeoman's service in utilising it as a means towards enlisting greater interest in forestry. As one of the committee of the Conifer Conference he in no small degree contributed to the more extensive knowledge of this interesting family of plants, and their merits, as timber trees, or otherwise for this country. He was an enthusiastic supporter of the establishment of a Forest School for Scotland, and in the capacity of a vice-president of the above society worked hard with this object. Few who have had the privilege of attending the annual excursions of The Royal Scottish Arboricultural Society, will forget the care and foresight with which they were arranged, nor the energy and enthusiasm by which they were conducted by our departed friend. To the young and inquiring forester he was always ready to impart knowledge, and no trouble was too great if it helped to cast a light on any disputed question. As a patient preceptor to the young, a faithful and sound adviser to the old, gardeners and foresters alike have lost a devoted and disinterested friend, and cultural science generally one of its brightest ornaments. In his private relations Mr. Dunn was a steady, consistent, and warm friend, sterlingly honest, a determined enemy of humbug and sham. Yet, while warm in his devotion to those he admired, he would always excuse the errors of his less desirable friends, and he has left behind him few enemies, and many admiring and devoted friends, who now, alas! mourn his loss. *C. S. F.*

TOM-TITS AS ENEMIES OF THE HORTICULTURIST.—As this subject is attracting some amount of attention at this moment, it is well to mention that I alluded to it in connection with Peas in pod in this journal either in the year 1887 or 1890. I was then staying with a friend, a well-known entomologist, at his vicarage, not far from Wincanton, in Somersetshire. His Peas had suffered very much from the attacks of birds, which he suspected—and rightly, as was proved—were not sparrows. He noticed that the mischief was always done in the early morning, and determined to watch and find out the real depredators. So, concealing himself not far from the Peas about 5 A.M., he had most undoubted proof that two species of tom-tits were the culprits, the worst in point of numbers being the marsh-tit. I did not see them in the act, but I remarked that the *modus operandi* of the tits was different to that of sparrows. The latter tear and lacerate the pods in extracting the Peas; the former go to work much more neatly, and bore holes in the pods. It might be thought that the tits were really in search of the grub of the Pea-weevil, but both my friend and myself were fully convinced it was not so, for the Peas were to all intents and purposes free from grubs. As a lover of birds, and having the greatest respect for tits as horticulturist's benefactors, this came somewhat as a shock, but there was no getting away from the facts. *R. McLachlan.*

MANGO-TREE IN BLOOM.—I have a Mango-tree in bloom in my conservatory, and supposing such an occurrence a rare thing in England, I wish to make the fact known. The fruit was brought home from India about ten years ago, and the seed planted. This is the first time the tree has blossomed. It grows in a cool conservatory, with just sufficient heat in winter afforded as will keep the frost out. Can you tell me if the Mango has ever fruited in England? [Yes, often. ED.] *L. Elizabeth Smith, The Oaks, Emsworth, May* 15.

GARDENING NOT HEALTHY.—It seems that gardeners made in Germany (p. 301) are not healthy; but one's own personal experience, and the men we know and meet in the daily round, show that it is not so in this country. To begin at home, my own father was able to perform his duties as head-gardener at the age of eighty-four; and after he resigned he was doing a labourer's job at his home, and taking a chill after getting overheated, it turned to pneumonia, which caused his death at the age of eighty-six. He was hale and hearty up to that time; and we have many hale and hearty veterans in the ranks of British gardeners, and who, like my late father, take a keen interest in all that relates to good gardening, and old age has left them frosty, but kindly. From my observation, if a man is temperate in all things, I should say that gardening in England is a very healthy occupation. *R. M., Newbury.*

THE VIOLA OF THE FUTURE.—Those who would set about raising a batch of extra-early blooming bedding Violas should take stock of the early-blooming section of bedding Pansies, as these have invariably been earlier to bloom than have Violas proper, although the distinctions are comparatively small. The very earliest to flower is Blue King, and as an early blue-flowered bedder it has never been excelled. Were such varieties as True Blue, or others blue-tinted, crossed with Blue King, possibly the desired strain might result. Certainly much labour has been wasted by Viola-raisers in producing mere fancy or show varieties, all of which are summer-bloomers; whilst the production of very early bloomers has been greatly neglected. We want these hardy bedding plants now as badly as ever, for there seem to be so few which are suitable to furnish carpets to bulbs that bloom early, and simultaneously with the bulbs. The months when very early bloom is desired are March and April. In the following month plenty of plants, and especially Violas, flower freely. I do not advise as a "Florist" does, that old plants put out in October to bloom early should be trusted to do so all the summer; the result would be unsatisfactory. No plants increase easier from cuttings put out into a cold frame and near the glass in September than do Violas; and these rooted cuttings will, in the spring, make the best possible plants put out in May to keep flowering for several months. Then lifted in the autumn, the beds manured and dug, the plants together with bulbs replaced, the earliest bloom it is possible to obtain with present varieties is produced. Still, earlier-flowering forms are much needed. *A.*

THE PLANT COSTERS IN THE FARRINGDON ROAD.—Anyone issuing from Farringdon Road station, and walking along the Farringdon Road to the Holborn Viaduct, will note that in the line of costermonger's stalls those for the sale of plants greatly outnumber any others. Another fact can be noted, that more persons crowd about the plant-stalls than any others. A coster's barrow, when completely set out, contains a multitude of things. There are greenhouse plants in pots in large variety, many kinds of hardy perennials, Carnations, Pinks, Canterbury Bells and other Campanulas, Sweet William, Columbine, and so on, and boxes of cuttings and seedlings of apparently almost every plant that can make the garden gay in summer. Some have Lilies in pots, others dry bulbs of L. auratum. Every article is named and priced, and on the whole, the naming is creditable. The providing of these plants for the costers, seen also in so many other parts of London, must constitute a great industry, and they must be produced and sold cheaply to enable them to be offered at such small prices by the dealers. One wonders what becomes of the contents of the barrows by night, for the clearing out of such a varied stock by sale must occupy days. One of the most popular plants, judging from the number offered for sale, is Nicotiana affinis, which is labelled the "Sweet-scented Tobacco," and no doubt powerfully appeals to many in consequence. The roots of many of the seedlings in boxes must, one would think, suffer much through the waterings necessary when exposed on a barrow on a drying day, and probably the proportion of those which survive transplantation is small. Still, this widespread interest in the culture of plants is a feature that increases yearly, and is an encouraging sign of the times. *R. D.*

LAW NOTES.

POISONED GRAIN ON LAND.

AT the Oundle Petty Sessions, Northamptonshire, recently, a farmer, was summoned for that he did, between March 20 and April 2, 1899, lay, put, and place, or cause to be laid, put, or placed, poisoned grain on land at Warmington. Defendant pleaded guilty. Mr. Batten appeared for the prosecution. He said the Wheat was steeped in strychnine, and was strewed for a distance of about 130 yards on the top of the land. There was, he said, a rookery at Elton. This year sixty-seven rooks, one pigeon, and a number of other birds had been picked up poisoned. Defendant might have some excuse, but he took the farm with a knowledge of the rookery at Elton.

After Mr. Knight, public analyst, had given evidence, defendant informed the Bench that he told Mr. Crisp he had laid this poisoned Wheat to defend a crop of Oats, the seed for which cost him 21*s.* a bushel. He was prepared to swear that he did not put down the poisoned Wheat until the Sunday night after Good Friday. He only had a half-pint ready for rats, and he used a tea-cupful of it near these Oats. Defendant added: I do suffer a deal. I have known over 100 dozen rooks to be shot at this rookery, and 50 dozen or more of late years.

The Chairman said they fined defendant £7 and £2 2*s.* 6*d.* costs, including the analyst's fee. The act, he said, was of a very serious nature, for a poor person might pick up a pigeon, take it home, and cook it. He (the Chairman) did not hold with the killing of rooks; they did as much good as harm. The fine and costs amounted to £10 3*s.* 6*d.* *Agricultural Gazette, Monday, May* 15.

FRUIT GROWING IN KENT.[*]

HAVING glanced at the conditions that prevailed in the past, we arrive at the year 1869, when that period of agricultural depression set in, which has been a great factor in turning the minds of farmers and landowners to sources of revenue other than ordinary three or four course husbandry. The gardening press had for some time been dinning into the ears of the public that vast sums of money were leaving the country for the purchase of such hardy fruits as could be grown in Britain. The daily press caught the same spirit, whilst the agricultural papers took up the idea earnestly, but slowly. By degrees this idea became a fact, and those men who went in boldly for fruit-culture at that time have made fortunes; and many labouring men, who had plenty of hard work in them, began in a small way and extended on all sides as they accumulated capital. There was another factor which had to be reckoned with. The removal of the excise duties from hops and malt had so depressed prices that orchards were found to pay better on an average of years than Hops or Barley; and fruit trees were introduced in the Hop-gardens in order that when they reached a paying age the Hops might be grubbed and the land laid to grass, as before the introduction of foreign mutton and beef, live stock was as yet a safe investment for farmers. For, in a grass orchard, as an old hand once remarked to me, "We get three crops: mutton, wool, and fruit." The growth of soft fruit for the making of jam and preserves, bottling, &c., which had hitherto been a local business, now became a vast industry, and thousands of acres of poor woodland and thin arable lands were adapted to the culture of Strawberries and bush fruits in the Swanley and Cray districts of Kent. No small amount of their success in those parts is doubtless owing to the cheap manure which they procure from London, where the authorities very rightly decline to have it stored, and it is this fertilising agent more than the soil itself which has justly made the Swanley fruit a name all over the kingdom.

Fruit-culture then began to be taken up as a serious business, and every advantage of improved systems of culture was embraced. New kinds of fruits in each family were tested, and their suitability for market, when once known, caused them to be largely planted. The matter of pruning, which we take to be the crux of the Kent system, was carefully developed, and it was found that very much finer examples could be produced by severe pruning, while such fruit made the highest prices. Timely pruning, gathering of the crop at several pickings, with an extra top dressing of manure in summer, gave results never dreamed of before. Growers were not slow in following such evident sources of profit, while new and distant markets became available, as the Northern and Western Railway agents eagerly competed for this traffic; and so it came to pass that Strawberries (which are one of the most perishable fruits) could be gathered at Swanley, and put on rail to reach Glasgow and Edinburgh the same day in good order.

My remarks in this division have hitherto referred more to soft fruits (Currants, Raspberries, Cherries, and Strawberries), but attention was at the same time given to Plums and Apples and the hardier kinds of Pears, which soon proved themselves to pay handsomely for cultural care, while the introduction of the Paradise stock for grafting Apples upon, enabled growers to obtain crops from trees three or four years old in bush form. The fruit from such trees, by its proximity to the ground, and by the aid of reflected heat, possessed such beauty, size, and appearance, that even in years when a glut of fruit obtained, the Apples from the Paradise trees made a good paying price. In fact it pays a farmer to plant them on a fourteen years' lease. Instead of the old tall orchard standard trees, Plums planted as two year old trees, headed back low for half standards, became the rage, and gave a crop the fourth or fifth year, and by a combination of the plantation system with top fruit, very large returns were secured from a small acreage. A word as to the Paradise stock. It is a surface-rooting Apple found in the central Asian mountains, and was named Malus paradisica from its being discovered near the supposed region of the Garden of Eden. This variety, though a weakling by itself, gives great vigour to the Apple scions and buds placed upon it, and causes the trees to produce fruit (as before stated) much earlier than trees raised on the Crab Apple. Heavy crops are frequently obtained on two-year trees and have to be thinned out. All the sorts of Paradise Apples have this effect except the narrow-leaved French variety, which has such a restrictive action on the scion that it fails to make a paying tree, and unfortunately this fact has in the past caused the Apple trees on this stock to be condemned. Our best nurserymen are now well aware of this, and only use for stocks the broad-leaved varieties. In the Royal Horticultural Society trials at Chiswick, it was found that the Paradise Apple stocks that were not grafted gradually dwindled away, while those which had "taken," or been worked, formed handsome and fertile trees. It is by use of these Paradise stocks that nurserymen are able to supply examples in many cases capable of bearing fruit the first season after transplanting, as this Paradise stock produces such abundant surface-roots that the trees do not suffer on removal.

There is yet another factor that has assisted the culture of fruit in the past thirty years, viz., the introduction of steam for the purpose of clearing and deeply cultivating the soil, in many cases quite equalling trenching. The good work done by the Royal Horticultural Society through its publications, conferences, and exhibitions, has conferred a great benefit on the public by the introduction of novelties and the awarding of medals and certificates to the most deserving kinds. The gardening press has done loyal service in giving information, and the lectures and practical demonstrations by the County Council lecturers have brought home to the people the advantage of culture, and the rational use of preventative mixtures for blights, insects, &c.

While not agreeing with the American system of spraying with poisonous compounds (as Paris-green, and London-purple) for orchards and plantations, having regard to their dangerous character, yet the use of winter dressing of lime, soot, and soft soap, and sprays for insects when they appear in spring or summer, is very desirable. Many of our best growers spray as often as four times a year, both as a preventative and a cure, but a free use of manure, clean cultivation, and care to search regularly for insect blights in order to cure such before they spread, will render drastic measures unnecessary.

It would be well in this place to give the *modus operandi* in forming orchards and plantations as now practised by the best Kent growers. If an orchard be desired on what is now grass land, say Cherries, they are planted at 36 feet apart in rows; but in order to reap an earlier return, Plums are placed between the Cherries at 18 feet apart, as these commence to bear the fourth or fifth year, whereas Cherries are some eight or ten years before they pay to pick. In planting, the turf is removed or dug in, and holes about 3 feet over and 1½ feet deep, are made to receive the trees, which, after planting, are staked, and if cattle are allowed into the orchard they are protected (cradled) with chestnut pales, made square or triangular to keep the heads of the trees from the reach of the cattle. The Plums are pruned back the first year, but the Cherries are better not cut back until they have made a year's growth. Care is taken to keep grass from rooting in the 3 feet circle, as its presence and penetrating power would otherwise absorb all the moisture necessary for the young tree to establish itself. The orchard trees are summer and winter pruned, and shaped, or balanced for five or six years, until they are fitted to be grown on, with an occasional thinning of the main boughs, and the ties which attach the trees to the stakes are renewed also. In forming a plantation, a field or stretch of ground which has been previously prepared by a crop of Potatos, Peas, or Greens, is deeply stirred, and the standard or half-standard trees are placed in lines, say 15 feet apart, for Plums, small-growing Apples and Pears, and 18 to 24 feet for the larger kinds. These being planted, give the pattern for the bush fruit, which will then be introduced in long lines at 6 feet apart, so that horse-hoes can be used to keep the land clean, all the trees of a kind being planted in a block so that the fruit can be gathered at one time. I strongly recommend that all new orchards be raised in arable land, when for some years a handsome profit can be made from intermediate vegetable crops, Wallflowers, &c., the cultivation of which is of great benefit to orchard trees. In the culture of Strawberries it is usual to plant after some crop which has been highly manured. The plants are set in spring, or, if favourable, in autumn. An acre requires some 12,000 for a plant at 2 feet apart, 30 inches from row to row. An improved plan now obtains of planting on the square, as horse cultivation can then be used both ways, and thus hand labour is saved.

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[*] Extracts from a paper by Mr. George Bunyard, Vice-President of the Fruit Committee of the Royal Horticultural Society, read before the Members of the Society of Arts on Wednesday, May 10, 1899, Sir Owen Tudor Burne, G.C.I.E., K.C.S.I., in the chair.

The Kent Cob Nut is very extensively grown in Kent, where the largest-sized nuts are produced; being a hardy subject, not particular as to soil, many steep banks and stony patches of land that will not grow better fruits are planted with trees at 12 to 15 feet apart, and for some years until the Cobs require all the ground, vegetable crops or bush fruits are grown between them, which being highly manured help the Nuts to form trees. They begin to crop the third year; many old plantations are found with trees 100 years old, some 24 feet through, and not more than 6 feet high, as they are severely pruned to keep the trees in the form of an inverted umbrella with about 9 to 12 main branches, all coarse wood being pruned away, as it is from the young spray that the Nuts are produced. The female blossom appears in February, and the male catkins or polliniferous flowers are best left on (or at least a portion of them) until the blossom is set, say March, before the winter pruning is carried out. They are also pruned in August, taking out the strong "wands" which are used for packing, and the top surplus growth is then broken off. A good plantation will yield ½ ton to the acre, but we have had two or three good years (1896-7-8) when crops have reached to 2½ tons. Prices vary from 25s. to 60s. per 100 lbs. Standard Apples and Plums are often planted over them, and this gives a larger return per acre, but Cobs are best alone, though they succeed fairly well under trees. Cob Nuts will also flourish in good ground (soil), but that is usually reserved for choice fruits and too gross growth is not favourable to their cropping.

Insects.—To deal properly with the subject of injurious insects affecting fruit trees and bushes would require an evening by itself, and I can only here suggest that adequate manuring of the soil, burning all prunings and rubbish as soon as collected, combined with a winter washing of lime, soot, and soft soap on the older trees, will to a great extent check insect ravages. Spring and summer spraying will be necessary for red spider on Gooseberries, aphis in Plums and Damsons, and black aphis in Cherries as soon as any insects are observed; they are readily seen, as the leaves curl on being attacked. Special formulas are given in most fruit books, but the safest remedy for spraying is soft soap and quassia. Where winter moth is prevalent orchard trees must be grease-banded, care being taken to place a ring of grease-proof paper on the stems before greasing.

(*To be continued.*)

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 16.—The meeting held on Tuesday last, in the Drill Hall, James Street, Westminster, immediately precedes the great Temple Show, and usually on such occasions the exhibits are rather fewer than above the average. This is partly true of the meeting under notice, for although the Hall was moderately well furnished with a miscellaneous collection of plants and flowers, there was not the abundance so frequently shown.

The ORCHID COMMITTEE recommended the awards of two First-class Certificates—one to a hybrid Phaius, P. × Phœbe, and the other to Odontoglossum Coradinei Mirabile. Also five Awards of Merit, all of which were to varieties of Odontoglossums.

An unusual number of Medals were awarded by the FLORAL COMMITTEE, but of Awards to novelties this Committee recommended two only. One of these was a First-class Certificate to a charming variety of Cerasus, collected by Mr. JAS. H. VEITCH in Japan; and an Award of Merit to a variety of Lathyrus splendens, shown by the Director of the Royal Gardens, Kew. Tulips were staged by Messrs. BARR & SONS, JAS. VEITCH & SONS, and HOGG & ROBERTSON, Dublin, the Irish collection again attracting much admiration. The hardy plant nurserymen contributed collections of plants in flower, but they complained that these plants are very backward in coming into bloom this season.

A fine specimen of Amherstia nobilis, from the Director of the Royal Gardens, Kew, was an object of great attraction.

The FRUIT COMMITTEE made no Awards to novelties, and beyond some very fine Strawberries, there were few exhibits. The late Mr. Malcolm Dunn, having been a member of this body for some years, a resolution was passed, regretting his unexpected decease, and giving expression to the committee's sense of the loss thus sustained. The lecture given in the afternoon was by the Rev. Professor Henslow, who spoke in an interesting manner upon some of the plants present in the Hall. Previous to this there were fifty-four new Fellows elected to the Society.

Floral Committee.

Present: Chas. E. Shea in the chair; and Messrs. Jno. Fraser, C. T. Druery, H. B. May, R. Dean, John Jennings, Jas. Hudson, J. F. McLeod, C. J. Salter, J. Fraser, James Walker, J. H. Barr, J. D. Pawle, George Gordon, R. H. Jenkins, D. B. Crane, Herbert J. Cutbush, Ed. Beckett, E. T. Cook, H. J. Jones, H. Turner, Geo. Paul, H. Selfe Leonard, Geo. Nicholson, and Ed. Mawley.

Messrs. W. PAUL & SON, Waltham Cross, Herts, made a very large exhibit of Roses in pots, which included well, flowered specimens of the extremely pale sulphur-tinted Tea variety Enchantress (figured in the *Gardeners' Chronicle*, Dec. 7, 1895, p. 673, and July 30, 1898, p. 89). Mdlle. Eugénie Verdier, Violet Bouyer, Corinna, Victor Verdier, Jeanne Dickson, and Gloire de Margottin were some varieties represented. In boxes were cut blooms of some of the newer Teas and hybrid Teas, as Empress Alexandra of Russia, Medea (a very pretty yellow Tea) Corinna, &c. (Silver Flora Medal).

Malmaison Carnation var. Princess May was shown by Mr. CHAS. TURNER, Royal Nurseries, Slough, who contributed a group of plants in 5 and 6-inch pots, all of them nicely flowered, and some of them showing the best shade of colour (Bronze Banksian Medal).

MARTIN R. SMITH., Hayes (gr., Mr. Blick), showed a rosy-red-coloured Carnation named Lady Hermione, but the variety gained no award.

Messrs. KELWAY & SON, Langport, Somerset, made a beautiful display with flowers of Tree Pæonies, most of them single-flowered, but including a few doubles. Some of the more choice were Countess Cadogan, white, marked prettily with Rose; Countess Crewe, and Mr. Jessop Hulton, a pure white one (Bronze Flora Medal).

Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton, showed a group of Gymnogrammas, in the centre there being half-a dozen intensely-coloured plants of G. grandiceps superba, a capital variety of this well-known gold-coloured Fern. Quite of a different habit, but still extremely attractive, is G. alstoniæ, and G. a. superba is a more fascinating plant still, the characteristics of the type being in it more highly developed. One of the best of the white Gymnogrammas is G. peruviana argophylla, a pretty smooth-leaved Fern, that was shown in several fine specimens. G. Mayi, of the same type, is charming. G. chrysophylla, G. Wettenhalliana, G. schizophylla, G. pulcherrima, and others, were included among the thirty-six species and varieties in the collection (Silver Banksian Medal).

Messrs. R. & G. CUTHBERT, Southgate, made a more gorgeous display than ever with plants of Azalea × mollis and A. mollis hybrids. There were plants also of the A. rustica strain of the type known as Ghent Azaleas, the double-flowered forms of which are very pretty. Of the A. mollis section the following varieties were especially good: Comte de Quincey, Nicolas Beets, Emilie Liebig, Dr. Reichenbach, M. Desbois, &c., and of the Ghent varieties Gloria Mundi, Ariadne (white), Norma (red), Aida (pink), and Bartholo Lozari (yellow). There were about forty varieties in this group (Silver Flora Medal).

Messrs. WM. CUTBUSH & SONS, Highgate, also staged a fine lot of mollis and Ghent Azaleas, for which a Silver Banksian Medal was awarded.

Messrs. HOGG & ROBERTSON, 22, Mary Street, Dublin, again made a fine display of Tulips, the Darwin varieties and "Parrot" section being shown in great variety. Varieties of Tulipa Gesneriana, T. Billietiana (Didieri), and other species were wonderfully fine. The flowers in every section were of very unusual size, good substance, and brilliant colour (Silver-gilt Flora Medal).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, contributed a group of flowers of bulbous plants. These were set up with much taste, and included considerable variety. There were Darwin, Parrot, and other Tulips, some of the later flowering Narcissus, and double Jonquils, Anemones, Allium Hermetti grandiflorum, Ixia crateroides, a very brilliant-flowered Ixia, and other varieties, Spanish Irises, strong spikes of Scilla peruviana, Tritonias, &c. A few plants, most of them annuals, in pots included Nemesia compacta bicolor, a pretty and small-flowered Nemesia; Clintoni pulchella, a dark blue flower with white centre, very effective for edging; Nycterinia selaginoides, Petunia Snowflake, a pretty white variety with single flowers; Linaria reticulata aureo-purpurea, &c. Messrs. VEITCH also exhibited a dozen plants in flower of Richardia Elliotiana; a charming tree Pæony with flowers of a salmon shade of rich rose, and plants in flower of Hydrangea Hortensia Mariesii (figured in a supplement to the *Gardeners' Chronicle*, May 28, 1898) (Silver Flora Medal).

Mr. THOS. S. WARE, Hale Farm Nurseries, Tottenham, in collection of hardy flowering plants, included a few Auriculas, a considerable number of blooms of late Narcissi, some plants representing varieties of Primula Sieboldi, several species the Iberis, including I. Little Gem, profusely flowering at a height of 2 to 3 inches; Saxifragas, &c. (Silver Banksian Medal).

Messrs. PAUL & SON, Cheshunt, had groups of a number of choice hardy plants in pots. We noticed Geum Heldreichi, G. aureum, and G. miniatum; Viola canadensis, Tiarella cordifolia, the purple-flowered variety of Aubrietia named William Marshall, Trollius japonicus plenus, Phlox stellaria, several well-known forms of Iberis, &c. Also plants of their pretty and new Polyantha Rose Psyche (figured in a supplement to the *Gardeners' Chronicle*, May 7, 1898). The flowers are double, with a delicate pink centre (Silver Banksian Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, made a fine display with Narcissus flowers Darwin, Parrot, and garden varieties of Tulips; plants also of Trillium grandiflorum, one of the flowers being so much larger than the type as to suggest a varietal difference, but was probably an illustration of the effect due to cultivation. Scilla pyramidalis alba, and other Scillas, Nepeta hederacea variegata, &c., were noticed (Silver Flora Medal).

Messrs. GEO. JACKSON & SON, Woking, Surrey, had another collection of hardy plants in which could be seen the handsome Incarvillea Delavayi. The plant is perfectly hardy, and its Gesnera-like rosy-purple flowers are really lovely. Anemone sylvestris fl. pl., Daphne Cneorum major, Phlox canadensis, Gentiana verna, and many other species of hardy plants in flower were shown (Bronze Banksian Medal).

Mr. G. W. PIPER, Uckfield, Sussex, again exhibited a quantity of blooms of his new Tea Rose Sunrise, an illustration of which we reproduce on p. 319. Its uncommon shade of colour should make it a favourite.

From F. D. GODMAN, Esq., South Lodge, Fareham, were shown blooms of Irises Susiani, atrofusca, &c., and of a number of Rhododendrons, some of them from plants indoors, and others from the open ground; R. Aucklandii, R. blandfordiæfolium (from the open), R. Nuttalli, R. campanulatum, R. Thomsoni, &c., were included in this fine exhibit (Bronze Banksian Medal).

Mr. H. E. Gribble, gr to the Marquis of LONDONDERRY, Wynyard Park, Stockton-on-Tees, showed a plant in flower of Echium formosum. The flowers are curious by reason of the bright red stamens, that are much longer than the rest of the flower, which is blue.

From Mr. ED. S. TOWELL was shown a zonal Pelargonium, with the somewhat sensational name of "hybrid Cactus-flowered Geranium Fire Dragon." The flowers are vivid scarlet in colour, and some of the petals being much reflexed longitudinally, a bizarre-like appearance is given them.

Mr. Jas. Hudson, gr. to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, showed again several new continental (Bruant) varieties of Heliotrope of a robust, growing habit. They were recommended to be tested at Chiswick.

Amherstia nobilis, a fine spray of which came from the Director of the Royal Gardens, Kew, though a novelty to a great many persons, is an old plant, and was figured in the *Gardeners' Chronicle* as early as March 31, 1849, when it flowered for the first time in Britain in the gardens of Mrs. Lawrence, at Ealing Park. This leguminous plant makes a fine tree for the tropical-house, its carmine-rose coloured flowers being quite regal in appearance. The vexillum and two wings are tipped with yellow. It is a native of Burmah, and was named in compliment to Lord Amherst, a former Governor. A fine spray of Clianthus Dampieri (Sturt's Desert Pea) was also contributed from Kew.

AWARDS.

Cerasus Pseudo-Cerasus var. James H. Veitch.—A light purple variety of the Japanese Cherry, discovered by Mr. Jas. H. Veitch when visiting that country a few years ago. The flowers are about 2 inches across, and very pretty. It is nearest to the variety known as Watereri, but is very distinct, and deeper in colour than it, being a magenta shade of pink, and commences to flower three weeks later. The foliage is distinct also, and more decorative, being a pretty shade of bronze. The margins of the leaves are very finely toothed. From Messrs. JAS. VEITCH & SONS, Chelsea (First-class Certificate).

Lathyrus splendens var. Pride of California.—A handsome variety, with large velvety-like crimson flowers, shown by the Director of the Royal Gardens, Kew (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshay, H. M. Pollett, H. Ballantine, F. Sander, H. J. Chapman, J. Gabriel, W. H. Young, F. J. Thorne, E. Hill, H. T. Pitt, J. Colman, F. Mason, A. H. Smee, T. B. Haywood, and Sydney Courtauld.

As usual at the meeting immediately preceding the Temple Show, there was a rather small number of entries. Baron Sir H. SCHRODER (gr., Mr. H. Ballantine), staged a small group of marvellously fine varieties of Odontoglossums, together with an inflorescence of the superb Lælio-Cattleya × Digbyano-Mossiæ, with a fringed lip. An award of a Silver Flora Medal was made for the collection. The Odontoglossums were O. luteo-purpureum sceptrum, The Dell variety, and O. × Coradinei mirabile; O. triumphans, The Dell variety, a noble flower, with the lower half of the petals and lip of pure white, and the margins of a yellow colour. The petals were marked with a broad band of brown across the middle, and some small reddish spots. The sepals were yellow-excepting about two-thirds of their length next the column, which was banded with brown. O. × Andersonianum superbum, a grand form, with white flowers, bearing dark reddish-purple markings; and the pleasing red-flowered Dendrobium sanguineum.

Messrs. Jas. Veitch & Sons, Chelsea, showed the group of the day. Among the hybrids were the remarkable new Lælio-Cattleya × Hyeana (L. purpurata and C. Lawrenceana), a pretty flower, partaking much of the characteristics of the seed-parent. The sepals and petals were light lilac; base of the lip yellow with narrow red lines, the showy front portion being different shades of purple; Selenipedium × macrochilum giganteum (× grande and caudatum Lindeni), a singular looking and effective hybrid possessing creamy-white flowers veined with Indian yellow, and having elongated petals as in S. caudatum, one of the flowers on the plant shown having a third elongated segment in the position of the dorsal sepal; Epi-Cattleya × radicato-Bowringiana, the singular cross between Epidendrum radicans and Cattleya Bowringiana. The inflorescence bore four of its remarkable lilac-purple flowers, the labellums veined with dark purple; L.-C. × Zephyra (L. xanthina and C. Mendeli); varieties of L.-C. × Ascania (L. xanthina × C. Mossiæ); the pretty pale yellow spotted with crimson Spathoglottis × aureo-Veillardi; some splendid plants of the graceful Oncidium phymatochilum, good examples of O. sarcodes, O. concolor, O. ampliatum, fine forms of Cattleya Mendeli, and C. Mossiæ, C. intermedia, and others; a fine series of varieties of Odontoglossum crispum, both white and spotted varieties; a well-bloomed specimen of the singular-looking Cypripedium Mastersianum, and other Cypripediums; Epidendrum xanthinum, E. × O'Brienianum, E. × elegantulum, and its unspotted variety, luteum; Dendrobium atroviolaceum; the orange-scarlet D. subelausum, which is said to succeed best in a tolerably cool house; Lælia purpurata, L.-C. × Latona, L.-C. × Pallas, the brilliant deep scarlet-coloured Epiphronitis × Veitchi, and various good Masdevallias, &c. (Silver Flora Medal).

Jeremiah Colman, Esq., Gatton Park, Surrey (gr., Mr. King), secured a Silver Banksian Medal for a very pretty group of good plants, the centre one being a fine specimen of Lælia purpurata, with white sepals and petals, and very bright light purple lip. With it were good forms of Cattleya Mendeli, C. Skinneri, Odontoglossum crispum, O. Halli, O. luteo-purpureum, O. cordatum, O. Rossii, O. cirrosum, Epiphronitis × Veitchi, Sophronitis grandiflora, a good rose-coloured Miltonia vexillaria, Masdevallia Veitchi, Dendrobium atroviolaceum, Lycaste Skinneri alba, Cymbidium × eburneo-Lowianum, &c.

Walter C. Walker, Esq., Winchmore Hill (gr., Mr. Geo. Cragg), showed a good example of Cattleya Walkeriana nobilior, with a four-flowered inflorescence.

Messrs. Hugh Low & Co. showed Odontoglossum × Enfieldiense, a bright-coloured, medium-size flower.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), showed Cattleya Mendeli "J. Gurney Fowler," a grand flower, of good size, having white sepals and petals, which are tinged with rose, the petals very broad, with a rosy-crimson feather on their outer portions, and the lip-front being of a bright rose-purple. The flowers were only just expanding, and not therefore at their best.

T. B. Haywood, Esq., Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter), showed Masdevallia Veitchi grandiflora taken from the original stock.

Malcolm S. Cooke, Esq., Tankerville, Kingston Hill (gr., Mr. Buckell), showed a pretty spotted form of Odontoglossum crispum, with a very fine branched spike.

AWARDS.

Phaius × Phœbe (Sanderianus × Humbloti), from Norman C. Cookson, Esq., Oakwood, Wylam, Northumberland (gr., Mr. Wm. Murray). The finest of the many beautiful Phaius raised by Mr. Cookson, surpassing even the handsome P. × Cooksoniæ (grandifolium × Humbloti), especially in its much larger flowers. The broad sepals and petals nearly equal in size, were pale pink, tinged with nankeen-yellow, except the margins. Lip very broad, yellow at the base, with dark red lines in the centre, the medium area bearing a callus of fine orange-coloured ridges. The well-displayed front portion of the lip was light rose, with dark rose-coloured veining (First-class Certificate).

Odontoglossum crispum "Purity," from T. B. Haywood, Esq., Woodhatch Lodge, Reigate, a grand pure white form, 4½ inches across, and well proportioned. Crest chrome-yellow (Award of Merit).

Odontoglossum crispum "Raymond Crawshay," from De B. Crawshay, Esq., Rosefield, Sevenoaks, a fine form, worthy to take a place in the front rank of spotted crispums. The base of the flower is of that purple-tinted class which Professor Reichenbach originally designated "fastuosum," the petals being finely fringed. The petals bore one to three peculiarly bright orange-tinted red blotches, and the sepals a cluster of more or less confluent blotches of a similar unusual tint. Lip white, with yellow crest, and few light brown markings (Award of Merit).

Odontoglossum × Coradinei mirabile, from Baron Sir H. Schroder. This is the plant originally illustrated in the *Gardeners' Chronicle* as O. crispum mirabile, and on whose obscure origin we at the time commented. It seems to be a second crossing of O. crispum with O. × Coradinei, or *vice versâ*. The rather narrow segments bore very distinct large brown blotches (First-class Certificate).

Odontoglossum luteo-purpureum sceptrum, "The Dell" variety, from Baron Sir H. Schroder. A splendid form of the typical O. l.-p. sceptrum, but with very large and richly-spotted flowers (Award of Merit).

Odontoglossum polyxanthum, "Gatton Park" variety, from Jeremiah Colman, Gatton Park. One of the largest and best forms of the species. Flowers very bright yellow, heavily blotched with chestnut-brown (Award of Merit).

Odontoglossum × Andersonianum giganteum, from Messrs. Hugh Low & Co., of Bush Hill Park, Enfield. One of the largest and finest of the numerous varieties of O. × Andersonianum. Flowers 4 inches across the petals, and 4½ inches across the sepals. Flower French-white, with many red-brown spots on the sepals, and fewer and smaller spots of a similar colour on the middles of the petals (Award of Merit).

Fruit Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. W. Wilks, Jos. Cheal, W. Poupart, A. F. Barron, A. H. Pearson, J. Wright, Alex. Dean, S. Mortimer, J. W. Bates, Geo. Wythes, F. Q. Lane, H. Balderson, Jas. Smith, Geo. Thos. Miles, Geo. Norman, Robt. Fife, and M. Gleeson.

THE LATE MR. MALCOLM DUNN.

The Rev. W. Wilks, M.A., proposed, and Mr. Jno. Wright seconded, the following resolution:—"The Fruit Committee of the Royal Horticultural Society has heard with great regret of the sudden death of Mr. Malcolm Dunn, for many years a member of their committee; and whilst recording the loss they themselves feel, they also desire to express their deepest sympathy with the immediate friends of Mr. Dunn." The resolution was carried unanimously.

Mammoth Strawberries were exhibited by Mr. A. Bishop, Hile Crish, Market Harboro; Mr. J. W. Miller, gr. to Lord Foley, Ruxley Lodge, Claygate; and Mr. C. J. Salter, gr. to T. B. Haywood, Esq., Woodhatch Lodge, Reigate. The largest fruits were those from Mr. Salter, who had fruits of Royal Sovereign similar to berries of this variety we have seen in former years from Mr. Norman, of Hatfield Gardens (a Cultural Commendation was awarded). Mr. Miller's fruits of the same variety were truer to type perhaps in the tapering form, but they were rather less in size (Vote of Thanks).

Those from Mr. A. Bishop were of the varieties Monarch and Leader, the berries of Monarch being exceptionally large and fine (Vote of Thanks).

Mr. Jas. Hudson, gr. to Leopold de Rothschild, Esq., Gunnersbury House, Acton, showed several trees in pots of Cherry Guigne d'Annoncay, a black-fruited variety. The Cherries were just ripe, and may be said to be very early.

From Messrs. T. Rivers & Son, Sawbridgeworth, were shown two dozen fine fruits of their new early Nectarine named Cardinal. The trees from which these fruits had been gathered were cultivated in pots, and were started on December 23.

Messrs. Jas. Carter & Co., High Holborn, exhibited very fine roots of what is undoubtedly a good early white long-rooted Turnip. The same variety, it appears, has been shown under another name, or an Award of Merit would probably have been made in its favour. However, the variety will be tested at Chiswick.

A free cropping Tomato named Hepper's Goliath was shown by T. B. Haywood, Esq. (gr., Mr. Salter).

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT.

May 8.—The monthly meeting was held at Sandown on the above date, Dr. J. Groves, B.A., J.P., in the chair.

Mr. S. Heaton, secretary, gave a lecture on "Horticultural Subjects," which was illustrated by a large number of lantern slides, kindly lent by Messrs. Sutton & Sons, of Reading.

Mr. W. W. Sheath, of Ventnor, staged many very fine seedling Hippeastrum blooms.

THE ROYAL HORTICULTURAL OF IRELAND.

May 9.—A meeting of the Council of the Royal Horticultural Society of Ireland was held at the Offices, 61, Dawson Street, Dublin, on the above date. Sir Percy Grace, Bart., occupied the chair, and the following members of the Council were present:—F. W. Burbidge, Esq., M.A.; Major Domvill, J.P.; Rev. F. C. Hayes, M.A.; D. Ramsay, Esq., H. Crawford, Esq., H. Smallman, Esq., and Greenwood Pim, Esq.

The minutes were then read by Mr. W. G. Hillyard (Secre-

Arrangements were made relative to the summer Rose show, to be held in Merrion Square on Thursday, June 29.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

May 11.—The members of the Committee present at this meeting were W. Thompson, Chairman; G. S. Ball, Vice-chairman; W. Stevens, W. Holmes, R. Johnson, Wm. Bolton, P. Weathers, Thos. Mills (Hon. Sec.). Mr. De Barri Crawshay was present, and was invited by the Orchid Committee to assist in their deliberations. The subjects brought before the Committee were not numerous, but included some very good things.

Mr. G. Shorland Ball (gr., Mr. Gibbons), Ashfield, Wilmslow, sent a magnificent example of Angræcum Sanderianum, with two gorgeous spikes of bloom, with about forty flowers on each spike. This plant was awarded a First-class Certificate, also a Cultural Certificate. A finely flowered piece of Dendrobium Devonianum came from the same collection, and was awarded a Cultural Certificate. Cattleya intermedia alba was well shown from the same collection, and the First-class Certificate awarded some time ago to another plant of this variety was confirmed. A form of Cattleya Schroderæ var Dellense also came from Mr. Ball's collection, but it was very poor thing, distinct as far as the lip was concerned, lacking any character whatever elsewhere, the formation and colouring of the lip giving one the impression that it was a natural hybrid between C. Schroderæ and C. Trianæi, or perhaps C. Gaskelliana; it is sweetly scented, as is C. Schroderæ. Another interesting plant was Cymbidium tigrinum with four well-developed spikes of flower, and bearing evidence of good cultivation, and the Committee recognised this by its dual award of a Cultural Certificate and Award of Merit.

Mr. G. W. Law-Schofield (gr., Mr. Shill), New-Hall-Hey, Rawtenstall, staged a fine plant of Cattleya Skinneri var. oculata, which obtained an Award of Merit; the same gentleman showed a fine plant of Cypripedium Lawrenceanum Hyeanum, "Cookson's var.," raised from seed.

Mr. T. Statter (gr., Mr. Johnson), Stand Hall, Whitefield, exhibited a plant of Lælia Cattleya × Highburyensis.

Mr. John Leeman (gr., Mr. Edge), West Bank House, Heaton Mersey, is an exhibitor who may always be relied upon to bring something good to the meetings, and on this occasion he brought a magnificent form of Odontoglossum polyxanthum called grandiflorum. It is undoubtedly one of the best forms in cultivation, being in form perfect and with brilliant markings; it was profusely flowered. A First-class Certificate was unanimously awarded this plant. The next best exhibit from this collection was Odontoglossum crispum grandiflorum, which variety received an Award of Merit last year. The cultivation of this plant was about as perfect as possible, and the Committee unanimously awarded a Cultural Certificate.

Mr. Duncan Gilmour (gr., Mr. Day), Sandgate, Sheffield, exhibited a few good forms of Cattleya Mossiæ, one of which called "imbricata" received an Award of Merit. Mr. A. J. Keeling, Bingley, Yorks, showed Odontoglossum Rossii majus var. purpureum, and Cattleya Schroderæ splendens.

Mr. John Robson, Altrincham, staged a good variety of Cypripedium Rothschildianum giganteum, and was given an Award of Merit. Mr. Robson also showed Epidendrum bicornutum and Cattleya Skinneri alba, the latter was slightly tinged with colour. *P. W.*

SHIRLEY GARDENERS' & AMATEURS' MUTUAL IMPROVEMENT.

May 16.—The monthly meeting of the above Society was held at the Parish Room, Shirley, Southampton, on the above date, when there was a good attendance of the members, presided over by Mr. B. Ladhams, F.R.H.S.

The lecture, on the "Sexuality in Plants," was given by Mr. A. Angell, Ph D., F.S.I., Public Analyst for the county of Hants, and was illustrated with a series of limelight slides, many of them kindly lent by Messrs. Sutton & Sons, Reading. A cordial Vote of Thanks was heartily accorded Mr. Angell.

Among the exhibits may be mentioned New Holland plants, shown by Messrs. W. H. Rogers & Son, Red Lodge Nursery; also a group of various plants by Mr. B. Ladhams, who showed five new Spiræas. There were shown a good plant of Medinilla magnifica, one of Acalypha Sanderi, Pansies, Ferns, Richardia (yellow), Cactus and Auriculasby various members of the Association.

A resolution to have an outing to Messrs. H. Cannell & Sons, Swanley, July 15, concluded the business.

CIDER AT THE SOMERSET COUNTY SHOW.

This year the cider classes showed very great improvement all round. Though the classes are restricted to the county of Somerset only, they filled exceedingly well, there being seventeen entries in the class for casks of not fewer than eighteen gallons and not more than thirty gallons, made in the autumn of 1898. The Gold Medal was carried off by Mr. W. T. S. Tilley, Shepton Mallett, who swept the board at the Bath and West Show last year. His cider meets the tongue bright and clear; it was rather inclined to be sweet, but it was full, rich, and had plenty of life—an ideal table cider. The Silver Medal went to Mr. R. W. Scott, South Petherton. This was for another full, rich, heavy, fruity cider. The third prize of a Bronze Medal went to Messrs. Waterman & Son, Baltonsborough, for a pleasant cider, which was not nearly so good as another cask from the same maker, which was not mentioned at all, yet the cider in this cask and that in the first prize-winning bottles was identical, and drawn from the same butt. There were sixteen entries in the bottled class. Here the Gold Medal went to a superb exhibit from Messrs. Waterman & Son. His samples were full of natural life and sparkle, with a delicate aroma. Mr. W. T. S. Tilley took Silver Medal for a full, rich, fruity cider. Mr. D. J. Crofts, of Sutton Montis, secured the Bronze Medal with a slightly thinner cider than the preceding ones. Like the cask cider class there was a most decided advance in the general quality of the cider, which must be justly considered the finest and best exhibition of this beverage that the Somerset County Show has yet held. It was noticeable that most of the exhibits were bright and sparkling, scarcely a cloudy lot being present. Evidently the work carried out by Mr. Neville Grenville and the Bath and West of England Society at Butleigh Court has had very beneficial results on the cider-making industry of Somersetshire. *E. G. F. W.*, *Agricultural Gazette*, *May* 15, 1899.

NATIONAL ROSE.

THE following is an extract from the report of this Society for 1898 :—

The past year may be regarded as one of steady progress, whether the point of view taken be that of the Society's exhibitions, the increase in the number of members, or the issue of its publications.

The most complete arrangements had been made by the Society's local representatives—Mr. R. B. Cater, the President of the Bath Floral Fête committee, and Mr. W. F. Cooling, for the southern exhibition, at Bath—but the season unfortunately proved such a very backward one that only exhibitors from the most forward districts were able satisfactorily to compete. In fact, it was without exception the smallest show the Society has yet held. For the same reason the Metropolitan exhibition, which took place at the Crystal Palace a week later, was of rather less than average extent. If, however, not so large as many of i s predecessors, it was certainly one of the best arranged and most enjoyable of recent years. This was principally due to the whole length of the nave having been placed once more at the disposal of the Society, and to the new plan of dividing the exhibits in the amateur and trade classes into distinct sections. The best Rose show of the year was undoubtedly that at Halifax, where 4100 blooms of "Exhibition" Roses alone were staged—making this the most extensive show, with the exception of that at Birmingham in 1890, that has ever been held by the Society in the provinces. At all three exhibitions the attendance of visitors was unusually large.

The conferences held in connection with the Bath and Halifax shows were most successful. Two excellent papers were read, one by Mr. W. F. Cooling, and the other by Mr. George Paul, followed in each case by an animated and interesting discussion. To the authors of those papers the thanks of the committee are due, as well as to Mr. R. B. Cater and the Venerable Archdeacon Brooke for presiding at the conferences.

The sale of the Society's publications during the year has been again very satisfactory, and especially that of the *Hints on Planting Roses*. The first edition of these "Hints" having become exhausted, a new and revised edition was printed, and has recently been distributed to the members with the report of the two Rose conferences.

The committee congratulate the members upon the present satisfactory financial position of the Society. The amount in hand at the beginning of the year was £30 18s. 7*d.*, and now at its close there remains £86 16s. 10*d.* to carry forward to the next account, the total expenditure having been £719 17*s.* 2*d.*, while the aggregate receipts, including last year's balance, amounted to £806 14*s.* Although more than the usual number of changes have taken place in the *personnel* of the non-exhibiting members, the amount received in subscriptions has on only three previous occasions been exceeded.

No application having been received from any northern town for the Society to visit it in 1899, there will be only two exhibitions this year—a Metropolitan and a Provincial show. This the committee cannot but regard as rather a fortunate circumstance than otherwise, for had three shows been as usual held, it would have been impossible to bring out the new edition of the *Official Catalogue of Exhibition and Garden Roses*, which it is proposed should be issued this year, without resorting to the undesirable practice of calling upon the members to contribute to a special fund to defray the cost of its publication. The Metropolitan exhibition will be held, as usual, at the Crystal Palace on the first Saturday in July; while the Provincial show will take place at Colchester, in conjunction with the Colchester Rose and Horticultural Society, on the following Thursday, July 6. In order that the early-flowering Roses be not altogether overlooked, it has been decided to offer a few prizes at the Royal Horticultural Society's Rose show, which will be held at the Drill Hall, in James Street, Westminster, on June 27, at which members of the National Rose Society may compete.

ROYAL BOTANIC.

MAY 17.—The exhibitions of the Royal Botanic Society become worse and worse. The annual summer display on Wednesday last was certainly poorer than any of its predecessors that has come under our notice. There was little competition in the general classes, and beyond a few exhibits from the trade, the rest of the display was not good in quality. The situation and advantages possessed by this Society are such, that it is lamentable that its exhibitions have become so poorly patronised. The National Tulip Society's Show was held in conjunction with the above, and a report will be found below.

Messrs. T. RIVERS & SON, Sawbridgeworth, Herts, exhibited nine pot-trees in fruit of their new Nectarine, named Cardinal, and two dozen or so fine fruits.

Caladiums were shown in a group of much merit by Messrs. JOHN PEED & SONS, who had large specimens of a considerable number of choice varieties. Madame J. Box, Triumph de Comte, John Peed, and Mrs. Harry Veitch were some of the best.

Messrs. R. & S. CUTHBERT's exhibit of hardy Azaleas made a very pretty effect grouped upon one of the grass mounds. The varieties appeared to be similar to those staged on Tuesday at the Drill Hall.

Messrs. KELWAY's beautiful Tree-Pæonies, that were massed in an attractive exhibit at the Drill Hall, appeared to much less advantage here.

Mr. CHAS. TURNER, of the Royal Nurseries, Slough, was the exhibitor of a group of plants of Souvenir de la Malmaison Carnation var. Princess May, similar to those noticed upon the previous day at the Drill Hall.

Mr. W. RUMSEY, Joyning's Nursery, Waltham Cross, showed a collection of upwards of twenty-two dozen cut Roses. A large number of the most popular varieties was represented, but especially Niphetos and Mrs. W. Rumsey.

Messrs. W. PAUL & SONS, Waltham Cross, Herts, had a fine exhibit of Rose-trees in pots, and of cut blooms.

Messrs. JOHN LAING & SONS, Forest Hill Nurseries, S.E., contributed a very meritorious collection of stove and greenhouse plants.

PURNELL PURNELL, Esq., Woodlands, Streatham Hill, S.W., made an exhibit of alpine plants, chiefly composed of Primulas, Auriculas, Sempervivums, and Saxifragas.

Some pretty table decorations were shown by Mr. L. H. CALCUTT, Mr. J. PREWETT, RAYLEIGH, and others.

COMPETITIVE EXHIBITS.

Mrs. ABBOT, South Villa, Regent's Park (gr., Mr. Geo. Kelf), had 1st prize for a pair of specimen Cordylines, showing Lindeni, and Lord Wolseley; and 1st prize also for six specimen Palms, including a very fine plant of Livistona chinensis.

The 1st prize for a collection of stove and greenhouse plants was won by Mr. Thos. Abbott, gr. to CAMPBELL NEWINGTON, Esq., The Holme, Regent's Park. The exhibit was composed of moderate specimens of ordinary foliage and flowering species.

Messrs. A. W. YOUNG & Co., Stevenage, Herts, was awarded a 1st prize for a collection of hardy herbaceous plants, but the exhibit, in our opinion, was not worthy of the award, albeit there was an abundance of cork-bark, and Isolepis gracilis was grouped with hardy Saxifragas and Polyanthus. The same exhibitors won 2nd prizes for zonal Pelargonium plants, and cut blooms of species of stove and greenhouse plants.

The 1st prize for six plants suitable for table decoration was won by W. C. WALKER, Esq., Percy Lodge, Winchmore Hill (gr., Mr. G. Cragg). He had pretty little specimens of Eulalia gracilis, Reedia glaucescens, Aralia gracillima, two Codiæums, and Geonoma gracilis.

Mr. G. CRAGG won 1st prize for a group of Orchids. There were numerous specimens of Cattleya citrina in flower suspended (rather inappropriately) from a towel-horse. The Odontoglossums, Dendrobiums, Cattleyas, &c., included several meritorious specimens. The 1st prize for six Orchids was taken by LUDWIG MOND, Esq., 20, Avenue Road, N.W. (gr., Mr. J. O. Clarke). A specimen of Odontoglossum citrosmum was a very good one.

THE ROYAL NATIONAL TULIP.

MAY 17.—The exhibition of this Society, held in the Gardens of the Royal Botanic Society on the above date, showed there is still some vitality attaching to it, and the show in itself, considering the late season, was an encouraging one. The flowers were generally small, and there were not lacking evidences that they had been hastened into bloom. The exhibitors were few, but everyone had done his best to contribute to the display.

A Silver Cup, given by Messrs. BARR & SONS, King Street, W.C., for eighteen dissimilar varieties of Tulips, two feathered, two flamed, and two breeders of each class, brought but one collection, the cup being awarded to Mr. J. W. BENTLEY, Kersal, Manchester, who staged medium-sized blooms of bizarres, feathered, General Grant and Masterpiece; flamed, San José and Excelsior; byblœmens, feathered, Adonis and Ashmoles 126; flamed, Othello and Chancellor; roses, feathered Mabel and Julia Farense; flamed, Clio and Annie McGregor. Of breeders there were of bizarres, Goldfinder, and Excellent; byblœmens, W. Parkinson and Adonis, the last superbly coloured; roses, Rosehill and Annie McGregor, both very handsome.

There were four exhibitors of twelve dissimilar rectified Tulips, two feathered and two flamed of each class. Mr. A. D. HALL, Wye, Ashford, Kent, was 1st with bizarres-feathered Sir J. Paxton and Lady F. Cavendish, flamed Samuel Barlow and Sir J. Paxton, byblœmen-feathered Proserpine and Trip to Stockport; flamed George Edward and Adonis; roses, feathered Count and Sarah Headley; flamed, Annie McGregor and Aglaia.

There were four stands of six dissimilar rectified Tulips, one feathered and one flamed of each class. Mr. J. W. BENTLEY was 1st with bizarre-flamed San José, and feathered Masterpiece; byblœmens, Trip to Stockport, flamed; and the same variety feathered; roses, flamed, Mabel; and feathered, Julia Farnese.

There were but two exhibitors of three-feathered Tulips, showing the difficulty of getting them into bloom. Mr. J. W. BENTLEY was 1st, with bizarre Masterpiece, byblœmen Guido, and rose Modesty.

There were five exhibitors of three-flamed Tulips, Mr. A. D. HALL taking the 1st prize with bizarre Dr. Hardy, byblœmen Talisman, rose Aglaia.

The breeder Tulips were very handsome, and attracted much attention from visitors. Mr. A. D. HALL had the best six, two of each class, viz., bizarre W. Lea, very dark, and Goldfinder; byblœmens, Adonis and Talisman; roses, Annie McGregor, both feathered and flamed; Mr. C. W. NEEDHAM was 2nd.

Mr. A. HALL had the three best breeders: bizarre, John Heap; byblœmen, Maid of Orleans; rose, Annie McGregor.

The 1st of the Samuel Barlow prizes for a pair of rectified Tulips, one feathered and one flamed, was won by Mr. C. W. NEEDHAM, who had flamed bizarres, Samuel Barlow, and feathered rose Modesty; 2nd, Mr. J. W. BENTLEY, with bizarres, flamed Lord Stanley; feathered rose, Julia Farnese.

The best feathered Tulip selected from the whole show was bizarre Richard Headley, shown by Mr. A. CHATER. The best flamed was byblœmen Geo. Edward, from Mr. A. D. HALL, a new seedling of excellent character, raised by Schofield, of Wortley, Leeds. The premier breeder was byblœmen Adonis, very fine in colour, shown by Mr. A. D. HALL.

Mr. A. D. HALL won the Silver Medal offered for a collection of English Florists' Tulips, having about fifty blooms of unnamed varieties, in addition to bunches. A Gold Medal was awarded to Messrs. BARR & SON, for a collection, having of bizarres, Masterpiece, Sir J. Paxton, and Lord Stanley; byblœmens, Lord Denman, Duchess of Sutherland, and Bessie; roses, Mabel and Aglaia.

[The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

	TEMPERATURE.						RAINFALL.			BRIGHT SUN.	
		ACCUMULATED.									
DISTRICTS.	Above (+) or below (−) the Mean for the week ending May 18.	Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.	More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.	
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.			
0	0 aver	45	6	+ 6	− 8	4 −	86	18·4	36	28	
1	1 −	42	8	− 22	+ 9	4 +	82	12·7	30	38	
2	2 −	29	2	+ 78	− 92	8 +	75	8·9	23	28	
3	1 +	59	0	+ 112	− 186	2 −	67	7·3	44	37	
4	0 aver	54	0	+ 84	− 141	2 +	68	9·9	33	34	
5	0 aver	66	0	+ 138	− 170	3 −	59	8·8	55	39	
6	0 aver	51	2	+ 14	− 47	2 +	84	19·3	13	29	
7	1 −	47	0	+ 99	− 139	2 +	78	13·1	32	33	
8	0 aver	60	0	+ 120	− 119	1 +	73	16·7	29	37	
9	0 aver	50	0	+ 37	− 67	1 +	91	13·9	36	32	
10	1 −	54	0	+ 109	− 52	0 aver	77	[illegible]	39	35	
*	1 +	79	0	+ 279	− 67	2 +	70	11·1	53	44	

The districts indicated by number in the first column are the following :—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending May 13, is furnished from the Meteorological Office :—

"The *weather* was fine and dry in all parts of the kingdom during the earlier days of the period, but after Tuesday the conditions became gradually unsettled, and during the remainder of the week showers or steady rain, occasionally accompanied by thunder and lightning, were experienced in nearly all districts. Some of our southern and south-eastern stations, however, had little or no rain.

"The *temperature* did not differ materially from the mean value for the time of year. The highest of the maxima, which were registered on the 8th in Ireland and Scotland, and on the 11th over England, ranged from 70° in 'Ireland, N.,' and 'England, S.,' and 69° in 'England, S.W.,' to 62° in 'England, N.W.,' and to 66° in 'England, N.E.' During Friday and Saturday most of the maxima recorded in the north and north-west were but little above 50°, and in some instances they were below that value. The lowest of the minima occurred, as a rule, either on the 7th or 8th, and varied from 27° in 'Scotland, E.,' 29° in 'Scotland, N. and W.,' and 31° in 'England, N.E.,' and over Ireland, to 38° in 'England, E.,' and to 45° in the 'Channel Islands.'

"The *rainfall* was more than the mean in most districts, but considerably less in 'Scotland, N.,' 'England, S. and E.,' and the Channel Islands. In 'Scotland, E.,' the fall was twice, and in 'England, N.E.,' three times as much as the mean value.

"The *bright sunshine* was less than the mean in most districts, but exceeded it in 'Scotland, N.,' 'England, S.,' and the 'Channel Islands,' and just equalled it in 'Ireland, N.' The percentage of the possible duration ranged from 55 in 'England, S.,' and 53 in the 'Channel Islands,' to 30 in 'Scotland, E.,' and 23 in 'England, N.E..'"

MARKETS.

COVENT GARDEN, MAY 18.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Cut Flowers, &c.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Anemones, dozen bunches	1 6 —	Marguerites, p. doz. bunches	3 0-4 0
Arum Lilies, dozen blooms	2 0-4 0	Maidenhair Fern, per doz. bunches	6 0-9 0
Asparagus "Fern," bunch	2 0-3 0	Mignonette, per dozen bunches ...	2 0-3 0
Azalea, white, 12 bunches	3 0-4 0	Narcissus, White, dozen bunches ...	1 6-2 0
Azalea mollis, per dozen bunches ...	6 0-9 0	Orchids, per dozen blooms	6 0-12 0
Bouvardias, per bun.	0 4-0 6	Pelargoniums, doz. bunches	4 0-6 0
Camellias, per doz. blooms	1 6-2 0	— scarlet, per doz. bunches	6 0-8 0
Carnations, per doz. blooms	1 6-3 0	Roses (indoor), per dozen	1 6-2 0
Daffodils, per dozen bunches	2 6-4 0	— Pink, per dozen	4 0-6 0
Eucharis, per dozen	2 0-3 0	— Tea, white, per dozen	2 0-3 0
Gardenias, per doz.	1 0-3 0	— Perle, per doz.	1 0-2 0
Hyacinths, Roman, per doz. bunches	4 0-6 0	— Safrano, p. doz.	1 6-2 0
Jonquils, per dozen bunches	1 0-2 0	Smilax, per bunch	3 0-5 0
Lilium longiflorum, per dozen ...	4 0-6 0	Tuberoses, 12 blms.	0 8-1 0
Lily of the Valley, dozen bunches ...	6 0-10 0	Tulips, per dozen...	0 6-1 3
		Violets, per dozen bunches	0 6-1 6
		— Parma, bunch	2 0-2 6

Vegetables.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ...	2 0 —	Mint, forced and natural, per dozen bunches, according to size of bunches	2 0-5 0
— Jerusalem, per sieve	1 6-2 0	Onions, Egyptian, cwt. bag ...	4 6-5 0
Asparagus, Giant, per bundle ...	5 0-10 0	— New, bunches.	2 4-3 0
Toulouse ...	1 3-1 6	— picklers, sieve	3 0 —
— Spanish, bund.	10-1 0	Parsley, doz. bun.	2 0 —
— Sprue	0 6 —	— sieve	1 0-1 6
— Eng., natural, per bundle ...	1 0-3 6	Peas, Channel Islands, Frame Telephone, lb.	0 8-0 9
— Various others	0 9-1 0	— French flats ...	4 0-4 6
Beans, Dwfs., Channel Islands, lb.	0 6-0 8	Potatos, Bruce, Saxon, Up-to-Date, &c., per ton ...	80 0-110 0
— — English, lb.	0 6-0 8	— New Jersey Kidneys, per cwt.	28 0 —
— — Longpods, in flats	3 0 —	— — Frame, per lb.	0 6 —
Beetroots, per doz.	0 6-0 9	— — Teneriffe, per cwt. ...	14 0-17 0
— bushel	2 0-2 6	— Lisbon, per box	5 0 —
Broccoli, dozen ...	1 0-2 6	Radishes, Round, breakfast, per dozen bunches	0 10 —
— crates	6 0-12 0	— Long, per doz. bunches ...	0 6 —
Cabbage, tally ...	3 6-5 0	Rhubarb natural, per dozen ...	2 0-2 6
— per bushel ...	2 0 —	— York, per doz. bundles ...	1 0-1 3
— dozen	0 9-1 0	Salad, small, punnets, per dozen	1 3 —
Carrots, new French, per bunch ...	0 6-0 8	Spinach, English, per bushel ...	2 0-2 6
— washed, in bags	4 0 —	Tomatos, new English, per lb.	0 6½-0 8
— Surrey, bunches, doz.	2 6 —	— Channel Islands, p. lb.	0 4-0 6
Celery, Red, dozen bundles ...	9 0-12 0	— Canary, boxes..	6 0 —
Cress, doz. punnets	1 6 —	Turnips, New French, per bunch	0 4-0 8
Cucumbers, per doz.	2 6-3 6	Watercress, p. doz. bunches ...	0 6 —
Endive, French, per dozen	1 6 —		
Garlic, per lb. ...	0 3 —		
Horseradish, New English, bundle	2 0 2 6		
— — loose per doz., fine ...	1 6 —		
— Foreign, per bundle... ...	1 0-1 2		
Leeks, per dozen bunches ...	1 0-1 6		
Lettuce, Cos, dozen	3 6-4 6		
— Cabbage, dozen	1 0-1 3		
Mushrooms, house, per lb.... ...	0 8-0 9		

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Arbor Vitæ, p. doz.	12 0-36 0	Ferns, small, per 100	4 0-6 0
Aspidistras, p. doz.	18 0-36 0	Ficus elastica, each	1 0-5 0
— specimen, each	5 0-10 0	Foliage plants, var., each	1 0-5 0
Dracænas, various, per doz.	12 0-30 0	Lycopodiums, doz.	3 0-4 0
— viridis, p. doz.	9 0-18 0	Marguerite Daisy, per dozen ...	6 0-8 0
Euonymus, various, per dozen ...	6 0-18 0	Myrtles, per doz....	6 0-9 0
Evergreens, in var., per dozen ...	6 0-24 0	Palms, various, ea.	1 0-15 0
Ferns, in variety, per dozen ...	4 0-12 0	— specimens, ea.	21 0-63 0
		Zonals, per dozen...	6 0-8 0

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian and Victorian, Ribstons, Pearmains, New York Pippin, Sturmer, Prince Bismarck, &c., per case ..	10 0-15 0	Grapes, English, Hambros, p. lb.	2 0-4 0
— Nova Scotian, Nonpareils, p. barrel ...	24 0-25 0	— Channel Islands Hambros, p. lb.	2 3 —
Apricots, box of 24	1 0-1 3	— Muscats p. lb.	4 0-6 0
Bananas, per bunch	6 0-10 0	Lemons, per case...	7 6-25 0
Cherries, sieve ...	9 6 —	Lychees, Chinese, packet, 1 lb. ...	1 3-1 4
— peck	6 0-6 6	Melons, each ..	1 6-2 0
— box	1 0-1 3	Oranges, Valencia, 420	13 0-20 0
Figs, per dozen ...	3 0-8 0	— Murcia, cases of 150 or 200 ...	7 6-8 6
Gooseberries, half-sieve or peck ...	5 0-6 0	— Blood	9 6 —
Grapes, Belgian A., per lb., new ...	1 4-1 9	Peaches, per dozen	6 0-42 0
		Pears, Australian, cases	4 0-8 0
		Pines, St. Michaels, each	3 0-5 0
		— French, in baskets, about 4 lb.	2 0-2 6
		Strawberries, p. lb.	3 6-4 0
		— Seconds ...	1 6-2 0

Potatos.

Bruce, Saxon, and Main Crop, 80*s.* to 100*s.*; Up-to-Date, 95*s.* to 105*s.*; Dunbar Main Crop, 100*s.* to 110*s.* *John Bath, 32 and 34, Wellington Street, Covent Garden.*

Remarks.—Spring Spinach has commenced. Gooseberries are coming in larger quantities. Cabbage coming better. Asparagus plentiful. Home-grown Tomatos are now coming freely, and of good quality.

SEEDS.

London: *May* 17.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report to-day's market thinly attended, with but little business doing. Sowing orders for Clover and other farm seeds are now naturally getting fewer and smaller. There is still some inquiry for Tares; whilst the sale for Mustard and Rapeseed improves. Hemp-seed continues both scarce and dear; and Canary-seed is attracting increased speculative attention. There is also a better sale for Blue Peas and Haricot Beans. Scarlet Runners are in good request, at the low prices now current. For Linseed the trade is steady. The Board of Trade Returns give the imports of Clover and Grass-seeds into the United Kingdom for the four months of this year, ending April 30, 1899, as 144,583 cwt, value £270,850, as against 203,798 cwt., value £395,664, for the corresponding period of 1898.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending May 13, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.	
	s.	d.	s.	d.	s.	d.
Wheat	45	11	25	4	− 20	7
Barley	27	1	23	11	− 3	2
Oats	21	1	17	9	− 3	4

FRUIT AND VEGETABLES.

Glasgow: *May* 17.—The following are the averages of the prices recorded since our last report:—Apples, Canadian Spies, 14*s.* to 18*s.* per barrel; Western States' Russets, 18*s.* to 20*s.* do.; Oranges, 6*d.* to 1*s.* per dozen; Grapes, home, 2*s.* to 4*s.* per lb.; do. foreign, 6*d.* do.; Tomatos, Guernsey, 4*d.* to 8*d.* per lb.; do., Scotch, 5*d.* to 8*d.* do.; Spring Cabbages, 6*d.* to 1*s.* per dozen; Cauliflowers, Edinburgh, 2*s.* to 2*s.* 6*d.* per dozen; Leeks, 1*s.* 6*d.* to 4*s.* per dozen bunches; Mint, green, 6*d.* per pound bunch; Onions, 4*s.* 6*d.* to 5*s.* per cwt.; Parsley, 1*s.* 6*d.* to 2*s.* per stone; Carrots, new, round, 1*s.* per bunch; do., 4*s.* 6*d.* to 7*s.* per cwt.; Cucumbers, 4*d.* to 5*d.* each; Lettuces, round, 1*s.* 3*d.* to 1*s.* 6*d.* per dozen; do., Cos, 4*s.* to 5*s.* do.; Radishes, long, English, 1*s.* 6*d.* per dozen bunches; Horseradish, 1*s.* 6*d.* to 2*s.* per bundle; round Radishes, 1*s.* to 1*s.* 6*d.* per dozen bunches; Mushrooms, 1*s.* to 1*s.* 2*d.* per lb.; Beetroots, 6*d.* to 7*d.* per dozen; Mustard and Cress, 3*d.* per punnet; Spinach, 2*s.* to 4*s.* per stone; Swedes, 2*s.* to 2*s.* 6*d.* per bag; Broccoli, Irish, 2*s.* to 2*s.* 6*d.* per dozen; Seakale, 1*s.* 6*d.* per bunch; French white Turnips, 1*s.* to 1*s.* 3*d.* per bunch.

Liverpool: *May* 17. — *Wholesale Vegetable Market.* — Potatos, per cwt., Main Crop, 3*s.* 6*d.* to 4*s.* 3*d.*; Bruce, 2*s.* 10*d.* to 3*s.* 6*d.*; Champions, 2*s.* 9*d.* to 3*s.* 3*d.*; Turnips, swedes, 2*s.* 6*d.* to 3*s.* do.; Carrots, 4*s.* to 5*s.* do.; Parsley, 6*d.* to 8*d.* per dozen bunches; Onions, foreign, 4*s.* to 5*s.* per cwt.; Cucumbers, 2*d.* to 3*d.* each; Cauliflowers, 1*s.* 3*d.* to 2*s.* per doz.; Cabbages, 6*d.* to 1*s.* do. *St. John's.*—Potatos, 1*s.* to 1*s.* 2*d.* per peck; do., new, 2*d.* to 4*d.* per lb.: Grapes, home, 2*s.* to 4*s.* per do.; Pines, English, 4*s.* to 6*s.* each; Strawberries, 4*s.* to 5*s.* per lb.; Peas, 6*d.* to 1*s.* do.; Cherries, 6*d.* to 10*d.* do.; Cob Nuts, 6*d.* to 8*d.* do.; Apricots, 1*s.* per dozen; Asparagus, 1*s.* 6*d.* to 3*s.* per bundle; Cucumbers, 3*d.* to 4*d.* each; Mushrooms, 1*s.* 2*d.* per pound and basket. *Birkenhead.*—Potatos, 1*s.* to 1*s.* 2*d.* per peck; do., new, 2*d.* to 6*d.* per pound; Peas, 6*d.* do.; Asparagus, 3*s.* to 4*s.* per 100; Cucumbers, 2*d.* to 6*d.* each; Strawberries, 4*s.* per pound; Cherries, 8*d.* to 10*d.* do.; Apricots, 1*s.* per dozen; Gooseberries, 8*d.* per pound; Grapes, home, 1*s.* 6*d.* to 3*s.* do. Mushrooms, 1*s.* to 1*s.* 6*d.* do.

GARDENING APPOINTMENTS.

Mr. W. Dandridge, late Gardener at Arrandene, Mill Hill, as Gardener to E. Ford, Esq., Bridgen Place, Bexley, Kent.

Mr. John Stubley, late Foreman at Fenay Hall Gardens, Huddersfield, as Gardener to Henry Appleton, Esq., St. Anns' Grange, Leeds.

Mr. W. G. Littlejohn, Gardener to Col. G. J. Scurfield, Hurworth House, Hurworth-on-Tees.

Mr. Wm. Dinsdale, Gardener to John S. Barwick, Esq., Thimbleby Hall, Northallerton.

Mr. Herbert Pearson, Gardener to the Rev. G. R. Dupuis, Sessay Hall, Thirsk.

Mr. H. Tate, Gardener to Rev. C. T. Kales, Newton-le-Willows, R.S.O., Yorks.

Mr. R. E. Brain, late Gardener at Danvers House, Culworth, as Gardener to Mrs. J. Savory, Sunrising, Banbury.

Mr. Charles Richardson, late Gardener to Sir Joseph Verdin, Bart., Brockhurst, Northwich, Cheshire, as Gardener at Bryn-y-neaudd Castle Gardens, Llanfairfechan, N. Wales.

Mr. George Shergold, for the past two years Head Gardener to C. E. Shea, Esq., The Elms, Foot's Cray, as Head Gardener to J. F. Gems, Esq., Eaton Grange, Cobham, Surrey.

Mr. J. A. Latter, for the last two and a half years Head Gardener at Elstead Lodge, Godalming, Surrey, as Head Gardener to John Godden, Esq., Ferncliff, Tunbridge Wells.

CATALOGUES RECEIVED.

Wood & Ingram, Huntingdon and St. Neots—Bedding and other plants.

E. M. Richford, 34, Cheapside, London, E.C.—India-rubber Stamps, Tyre Pads, &c.

J. B. Baillière & Sons, 19, Rue Hautefeuille, Boulevarde Sainte Germain, Paris—Books.

Adaptation to Circumstances.— Much attention is now paid to the co-relation between structure and conditions of life. The plants growing in desert places have a peculiar conformation, aquatic plants also, and so forth. Nevertheless, we sometimes meet with curious exceptions, one of which was given us lately by Mr. Scrase Dickens. The Heaths, as everyone knows, generally grow in dry places, and the leaves are sharply rolled round at the margins as to nearly cover the lower surface, where the stomata are placed, and thus impede undue evaporation. Mr. Scrase Dickens' specimen, however, showed that this conformation is not confined to plants growing in dry places, for the specimen of Erica mediterranea, with which he obliged us, was found growing in wet, swampy places, in Connemara.

Osier Cultivation.—Osier culture is being greatly developed in Germany, and there can be no doubt that a large area of the land unsuitable for ordinary agricultural crops in this country might be profitably utilised in the cultivation of Willows suitable for basket-making. More especially has the culture of Osiers been developed in the valleys of the Wurn and the Roev, near the borders of Holland. The prosperity of the district is reported to have been greatly increased by the introduction of this new industry. Basket-making in Germany is a considerable industry, employing nearly 40,000 persons annually, representing nearly £625,000 capital, and using the growth of over 48,000 acres of Willows, valued at £396,000 on the stocks, or nearly double that amount when peeled. A considerable proportion of the baskets used for marketing fruit and vegetables in this country come from Germany; and as they could be equally as well made at home, we are pleased to learn that the question is receiving the attention of several of the Technical Education Committees.

Sale of Orchids at Manchester.—A sale of surplus Orchids in the collection of F. Hardy, Esq., Tyntesfield, was conducted on the 16th and 17th inst., by Messrs. Protheroe & Morris. Many of the principal buyers from London were present, including Messrs. Jas. Veitch & Sons, Hugh Low & Co., F. Sander & Co., Mr. Tracey, and Mr. A. Outram. The majority of the rare and most valuable specimens were purchased by southern buyers. On the first day the sale realised about £1100, and on the second day, £800. A plant of Cypripedium × Fred Hardy realised 50 guineas, and two specimens of C. × Jas. H. Veitch were sold respectively for 80 guineas (with two growths), and 52 guineas (one growth); C. insigne Sanderæ was sold for 31 guineas. Other leading prices were:—Lælia purpurata Hardyana, 18 guineas; L. anceps Amesiæ, 14 guineas; Lælio-Cattleya Macfarlanei, 22 guineas; L.-C. Pallas superba, 40 guineas; C. Mendeli, 45 guineas; C. Mossiæ Wagneri, 21 guineas; L.-C. × Bella, 46 guineas; C. Mendeli, Quorn House var., 42 guineas.

Answers to Correspondents

Bordeaux Mixture: *C. N. M.* The materials consist of copper sulphate, 4 lb.; fresh lime (unslaked), 4 lb.; water, 40 gallons. Care should be taken that the lime is of good quality, and that it has not become air-slaked. Dissolve the copper sulphate in a tub, and slake the lime in a box. When the sulphate is dissolved, put in slowly the slaked lime-wash, after it has by settling become somewhat clear, and stir the whole well together. To ascertain if the quantity of lime is sufficient, dip a clean knife-blade into the mixture; if copper be deposited on it there is too much copper, and more lime must be added until no deposit is made. Failure to do this may result in injury being done to tender foliage. A small excess of lime will do no harm.

Chrysanthemum Leaf-spot: *S. W.* A disease due to a fungus, Septoria chrysanthemi. The brown dry spots are quite distinct from rust. The usual remedies, Bordeaux Mixture and potassium sulphide, sprayed over the plants have given fairly satisfactory results. The solutions used should be rather dilute to prevent spotting of the foliage. Recently Mr. R. W. Hodder recommended a whale-oil soap mixture for the rust (see *Gardeners' Chronicle*, January 28, 1899, p. 63); we believe it would be equally effective against this leaf-spot fungus. Select cuttings from plants free from this disease, as it is generally most severe amongst the cuttings. *W. G. S., Leeds.*

Disease of Gooseberries: *Stanley Platt.* The foliage, &c., sent is infested with Æcidium grossulariæ — "Gooseberry-rust" (fig. 119), see also *Gardeners' Chronicle*, August 20, 1898, p. 145. There is no known cure for an attack. Preventive dressing with the Bordeaux Mixture might ward off an attack. All affected leaves and fruits should be collected and burned.

Fungus on Juniper Twigs: *C. C. Ellison.* Gymnosporangium tremelloides, the mycelium of which penetrates the bark, causing thickening of the twigs and a premature death of the distal portion above the swellings. The brown, velvety spore-cushions break out between the bark-scales on the swollen portions about the middle of April. In May or June, the cushions swell up and become brownish-yellow, gelatinous clumps, dotted over with dark points. This species of fungus is of great importance, on account of its attacks on Apple-trees, producing in the spore-form Roestelia on the leaves. Every means should be taken to destroy it by cutting-off and burning infested twigs, and the use of the Bordeaux Mixture on trees infested with it.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*H. O. E.* 1, Sedum acre aureum; 2, Sedum sarmentosum; 3, Saxifraga muscoides; 4, 5, forms of Phlox subulata; 6, send when in flower.—*J. R., France.* The flowers arrived dry, and with the colour gone, and pollinia imperfect. 1, is doubtless Spathoglottis Petri; 2, conforms to all the characters of an albino of Broughtonia lilacina (Læliopsis Dominyensis); we have heard of white forms of it, and also Broughtonia sanguinea, but have never seen them.—*A. L.* 1, Dendrobium clavatum; 2, Phalænopsis Luddemanniana—a good variety; 3, Odontoglossum cordatum.—*K. H.* Pyrus Malus floribunda.—*H. H. E.* A Streptocarpus, in which we see nothing unusual.—*Mrs. Williamson, Canterbury.* Melianthus major.—*H. W.* 1, Saxifraga Mawiana; 2, Doronicum caucasicum; 3, Iberis Tenoreana; 4, Corydalis nobilis; 5, Epimedium alpinum; 6, Alyssum saxatile.—*Dinwoodie.* Medinilla magnifica.—*G. H. M.* Magnolia Soulangeana. Your Grapes are rusted from syringing in the sunlight, or perhaps from excess of sulphur on the pipes.—*J. W.* 1, not found; 2, Tulip; 3, a Savin with a fungus—Gymnosporangium (see above); 4, Scilla with a fungus—Puccinia: further information next week.—*W. M. & Co.* Æcidium grossulariæ, a fungus (see fig. 120). —*Card-box: no name.* 1, Ceanothus azureus; 2, Choisya ternata; 3, Bridgesia spicata; 4, Cistus ladaniferus; 5, Pyrus Maulei; 6, Vinca major; 7, Euonymus japonicus variegatus; 8, Kerria japonica; 9, Viburnum Tinus.—*Wills.* Melia Azedarach.—*J. P.* 1, Pittosporum Tobira; 2, Styrax officinale; 3, Exochorda grandiflora.—*M. R.* 1, Fabiana imbricata; 2, Forsythia viridissima: perhaps, specimen insufficient.—*G. H. S.* 1, Uvularia perfoliata; 2, Piptanthus nepalensis; 3, Toxicophlœa spectabile; 4, Amelanchier vulgaris; 5, Choisya ternata; 6, Viburnum Opulus. —*W. O.* Arum crinitum.—*G. H.* 1, A Cedar which we cannot name without seeing the tree; 2, Abies cephalonica; 3, Cupressus thyoides; 4, Taxodium sempervirens; 5, Juniperus communis; 6, Cephalotaxus pedunculata var. fastigiata.—*B. B. M.* The spotted leaf is Begonia incarnata maculosa; the other referred to by you was not found.—*S. G. S.* Both remarkably good varieties of Dendrobium chrysotoxum.—*T. R.* Cattleya intermedia.—*P. C. P.* Probably the seeds of an Alstrœmeria.—*G. H.* 3, Cuphea ignea.—*J. Milsom.* 1, Pittosporum tenuifolium; 2, Viola hirta.—*F. C.* Scilla campanulata.—*H. A. M.* Ribes aureum.

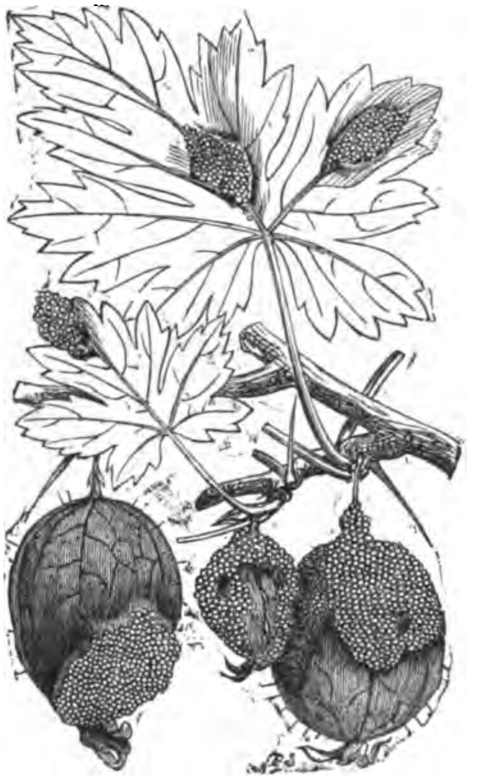

Fig. 119.—Æcidium grossulariæ: rust of gooseberries.

Paris Lily: *W. C. Leach.* Paris quadrifolia, probably.

Patron Saint of Gardeners: *Godfrey.* The reputed patron saint of gardeners is according to Mrs. Bury Palliser, who wrote an account of *Brittany and its Byeways*, London, John Murray, 1870 (St. Fiacre); see *Gardeners' Chronicle*, January 1, 1870, p. 13.

Peaches in Close Clusters: *Anxious Reader.* The clusters of fruit have originated from an union of the ovaries of the blossoms, for which the extra vigour of the trees may account.

Pear Diseased: *Notts.* The young shoots and leaves are attacked by the Pear-leaf Blight, caused by fungus (Entomosporium maculatum). It is one of the worst of orchard diseases, because not only does it cause loss of the foliage, but it passes on to the young fruit and makes it stunted and unshapely. The disease is recognised by the dark-red spots standing up from the surface of the leaf or fruit. It appears first on the young unfolding shoots, and is said to occur more frequently on seedling Pears than on grafted plants. The remedy which has been found most successful is Bordeaux Mixture. This is sprayed over the trees from the time the leaves unfold, and at intervals of two to three weeks till August. It should then be discontinued, as the Mixture may spot the ripening fruit. The spraying machine ought to be one of the larger forms, and strong enough to reach the topmost twigs. In autumn all fallen leaves should be collected and burnt, and in pruning care should be taken to remove all twigs which were attacked the previous season. *W. G. S., Leeds.*

Rhododendron Leaves: *H. M.* A mechanical injury, caused probably by the dogs, as you suggest. There is no fungus. Put up a net round the bushes, or take other means to keep the animals at a distance.

Soil Analysis: *H. A. C.* If you are a Fellow of the Royal Horticultural Society apply to the Secretary.

Sweet Peas and Manure: *G. E. P.* The substances named are very suitable manures for the plants. Superphosphate of lime would supply the one, and the potash might be afforded by wood-ashes if you have them, or by commercial potash. Carbonate of potash may be safely and usefully employed at the rate of 500 lb. per acre. Soluble calcium, phosphate, or superphosphate of lime, 300 lb. to 500 lb. per acre. These quantities would suffice for one dressing. If nitrate of soda be employed at the rate of 80 lb. per acre, the superphosphate might be reduced by one-half.

Vitis Coignetiæ: *R. C. D.* If your plant is growing in a pot, and has as yet not made much growth, it may be planted forthwith. Let the station for the plant be well prepared, and make the drainage good, and be sure that the position, whether on wall or trellis, is fully exposed to the sun. It is a rampant grower, needing a good deal of space.

Wireworm: *Sufferer.* You can do little whilst the ground is under crop beyond applying agricultural salt and nitrate of soda in safe doses twice or thrice for the destruction of the wireworms; but as a palliative you may sow Lettuce-seeds among the crops, the "worm" having a partiality for the roots of these plants. In the autumn or early winter it would be well to dress the land heavily with gas-lime and salt, letting these substances lie on the surface till February or later, then trench the soil as deep as you prudently may, using more gas-lime or quick-lime as the work of trenching proceeds. It is probable that this sort of procedure will have to be extended over several years.

Communications Received.—G. B. M.—D. T. F.—G. B. M.—D. B.—F. C.—J. T. L.—A. C.—W. S.—F. J. H.—S. F.—S. P.—A. F.—D. B.—J. J. W.—W. S.—R. M.—W. W.—F. R.—Expert.—R. W. A.—H. T. M.—W. H. Y.—W. J. B.—W. G. S., Leeds.—A. D.—R. McL.—J. T. L.—R. I. L.—C. J.

Specimens and Photographs Received with Thanks—Field of Narcissus ornatus, Orchard Co., Scotby, Carlisle.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libraries.*

THE
Gardeners' Chronicle

No. 648.—SATURDAY, MAY 27, 1899.

THE FERTILITY OF SOILS.

THE factors upon which the fertility of the soil depend are many. The amount of plant-food and its degree of solubility, the mechanical texture or tilth, and the climate, which includes temperature, amount of rainfall, &c., are the chief of these.

Soils to be fertile must contain the elements of plant-food in such forms that they can be readily used for the nutrition of vegetation. At the same time, its condition must not be too loose, else a firm hold will not be afforded to the roots of plants, and there will be too much drainage and evaporation; nor must it be too heavy and plastic, for then air and water could not freely permeate it, nor the roots extend themselves beyond a very limited area. Generally speaking, light, loose soils are not as rich in plant-food as those in which clay predominates; yet, on account of their excellent condition of tilth, and the ease with which they are worked, they are specially adapted for most horticultural purposes, and having a sufficiency of manure, they often yield in favourable seasons heavier crops than the stronger soils would do. Stiff, heavy clays, though rich in inorganic food, potash, and phosphoric acid, are often poor in nitrogen, while their mechanical condition is such as to prevent thorough aëration and the penetration of the roots. It is these soils especially that are benefited by drainage. By a system of drainage the water which saturates the surface-soil is carried off, air allowed to permeate, the whole is rendered more friable and easily worked, and much plant-food is converted into assimilable forms.

Where sand largely preponderates, the soil is not retentive of moisture and fertilising material, especially if the subsoil be light, and though easily worked it is not so desirable in very dry seasons as on a heavier soil. A proper proportion of sand and clay, therefore, for many reasons, makes the best soil. With the clay and sand, varying amounts of peaty matter, or humus, derived from the decomposition of vegetable matter, may be mixed. In horticulture leaf-mould is largely used. Calcareous matter, chalk, lime, and bone-meal, are usually associated, and a light proportion of these exerts a beneficial influence upon the tilth of the soil, as well as upon the solubility of the plant-food. By the slow decomposition of the clay, the vegetable matter, and the lime, valuable plant-nutrients, are liberated in a soluble form, and therefore the function of these soil constituents is not only mechanical but chemical.

The most important inorganic constituents of a soil are potash and phosphoric acid. These, together with nitrogen, are known as the essential elements of plant-food.

To understand the question of soil-fertility, the gardener should become familiar with these matters, should know what these elements will do for crops and plants, and when and how to apply them.

Nitrogen.—This element, like potash, lime, and phosphoric acid, is an essential constituent of all plants. In its free state it is a permanent gas, and is one of the most widely distributed elements, comprising about four-fifths of the earth's atmosphere. This vast supply of nitrogen is, however, of no direct value to plants, since they are unable to use it, except when combined with the elements oxygen or hydrogen, forming nitric acid and ammonia, that may be taken up through the roots of plants. Leguminous plants, like Peas, Beans, Lupins, &c., and possibly Orchids, are indirectly able to build up their nitrogenous ingredients from the free nitrogen of the air, through the activities of microscopic plants (known as bacteria), intimately associated with them; other plants may, possibly, under favourable conditions to some extent have the same faculty.

Nitrogen is present in the soil in simple combinations as nitrates or ammonia salts, or as more complex organic compounds, forming the dark coloured humus especially abundant in peat, leaf-mould, and forest soils. The total quantity of nitrogen in ordinary good soils varies between 0·1 and 0·2 per cent.; occasionally the nitrogen content will approach one per cent., as in the case of rich pasture soils. Peat soils will often contain over two per cent. of nitrogen; this is, however, largely in a combination that will not directly sustain plant life, but has to undergo a weathering process before the plant can make use of it.

Nitrogenous manures help to strengthen plants in their earlier growth, favour leaf development, and give a deep green healthy colour to the foliage; applied in excessive quantities they induce rank growth at the expense of the development of the fruit.

Phosphoric acid is present in soils in combination with a number of other chemical substances, which exert a very beneficial influence on the growth of plants. Phosphoric acid is found in soils partly in a form that plants can readily dissolve and make use of in the building of their structure, partly in an insoluble form which under the influence of water, carbonic acid and air, or the mineral components of the soil are gradually changed into available plant food. There is only a small quantity of phosphoric acid in ordinary soils, viz., less than 0·2 per cent., and often only 0·05 per cent.; but as the content is not decreased in any way except by the growing of crops, the soil will only become deficient in this constituent in case of continuous cropping without manuring.

Phosphoric acid is of special importance in the early life of plants; it stimulates the assimilation of mineral substances in the plant, and favours the development of its root system. There is an intimate relation between the nitrogenous principles and the phosphoric acid in plants, and we find that, generally speaking, a high nitrogen content is accompanied by a high percentage of phosphoric acid. The phosphoric acid of plants is usually concentrated in their maturing organs, the flower and seed.

Potash is found in Nature in combination with acids like sulphuric, carbonic, and silicic acid. Potash is generally distributed in small quantities in most soils, except light sandy soils, which are apt to be deficient in this fertilising element; it is found in ordinary soils in somewhat larger quantities than phosphoric acid, namely, from one to three-tenths of one per cent., and occasionally as much as one per cent. in case of soils originating from granitic, basaltic, and other rocks rich in potash. Like phosphoric acid, potash may be present in the soil in a non-available form, especially as double silicates, that are but slowly decomposed through the action of water, air, and other constituents of the soil.

Potash is found in the largest quantities in foliage plants, in leguminous plants, in Vines, and in Potatos. It is of the greatest value to plants, in facilitating the flow of sap, and the diffusion of starch from cell to cell. It gives increased strength to the cell structure of plants and has in general a beneficial influence on the flavour and texture of fruits and Potatos.

Lime is present in most fertile soils in sufficient quantities to allow of the production of large crops, but occasionally there will be too little of it to reach this end, in which case the addition of some lime compound to the soil, will produce very beneficial results. It is considered that a lime content of one-half of one per cent. an ample supply in light soils, while heavy soils may need 2 per cent. or more.

The good effects from the addition of lime to soils do not come only from the increase of an ingredient essential to plant growth, but the mechanical condition of the soil, its texture, water and heat-retaining capacity, are improved. This same is true in perhaps all cases when fertilisers are applied to soils, a fact which is generally overlooked by horticulturists.

CAMBRIDGE BOTANIC GARDEN.

In the *Gardeners' Chronicle* for November 4, 1882, was published an illustrated article upon the University Botanic Garden, which contained details of the history of the establishment, and of the purposes it serves in respect to the University. We do not propose for the moment to speak of these matters, but to reproduce a few notes recently taken when having occasion to visit Cambridge, the opportunity was embraced to obtain a very hurried glimpse of the plants under Mr. Lynch's care.

Temperate-house.—This structure contains some capital specimens of the cooler-growing Palms, and a collection of miscellaneous species of plants that need but slight protection from the weather. In bloom was noticed Grevillea glabrata, an Australian species introduced in 1838. It is an erect-growing glabrous shrub, and the plant at Cambridge, which is many feet in height, is against the glass side of this house. An extremely beautiful effect was made by an abundance of axillary racemes of white pendulous flowers; the plant cannot be too strongly recommended for cultivation in temperate houses or large conservatories. Also the handsome North American Honeysuckle, Lonicera sempervirens minor; the well-known Choisya ternata; Cistus monspeliensis, a southern European species, with white-petalled flowers and yellow centres; also Macleania insignis, a Vacciniaceous plant, from the American Andes, with orange-red flowers; Heterotoma lobelioides, the bird-plant of Mexico, so named from a supposed resemblance the flower bears to a bird. The plant belongs to the Lobelia family, and has alternate petiolate leaves. The flowers are a shade of red and yellow, the curious corolla being somewhat tubular; it was introduced in 1861.

Water-Lily House, &c.—An excellent photograph of the interior of this house was given in the issue of the *Gardeners' Chronicle* for June 14, 1890. It contains a very representative collection of water and semi-aquatic plants. The tank, which covers the greater part of the floor space, is occupied with species of Nymphæa, including some of Marliac's hybrids, and many of the plants are now in bloom. There are good specimens of the Paper Reed

(Papyrus antiquorum), Thalia dealbata, Sagittarias, Luffa acutangula, &c. We noticed a plant of Brocchinia cordylinoides, a rare Bromeliad introduced to Britain in 1888. In the natural habitat of the plant, the Utricularias are found growing in the axils of the leaves that closely wrap the stem. There is a very fine plant of Norantea guianensis in the Palm-house, but it has not flowered. Bignonia purpurea, figured in these columns from Cambridge last year, furnishes one of the pillars, and although it has not flowered, the specimen of Kendrickia Walkeri, presented by Sir J. Hooker some years ago, is probably the finest in this country. Richardia Rehmanni, which has been described as the pink-flowered Calla, was in bloom, but it is a very disappointing plant here as elsewhere, and the suspicion of pink is an extremely faint one.

The Ferneries.—There are three Fern-houses, containing respectively warmth-loving species, those of cooler habitats, and the Filmies. The last-named are in splendid condition, and include fine specimens of Todea Moorei, the Killarney Fern, and other species. In regard to the Ferns generally, the collection is especially rich in species, rather than in varieties, but many of the more distinct of varieties are there.

In the cool division we noticed nice specimens of the interesting water-plants Isoetes lacustris and Eriocaulon septangulare (the Pipe-Wort), both of them growing a few inches below the surface of the water.

Succulent-house.—There is a very fine collection of succulent plants, and these are exclusively the occupants of two of the structures. We noticed a magnificent example of Epiphyllum Gärtneri; it was grafted along the stem of a Pereskia that reached a considerable distance up the rafter of the house, and the growths of the Epiphyllum are better than we have ever seen this plant. There are several capital plants of Stapelia gigantea, but unfortunately they were not in bloom. Senecio Gunnisii is an exceptionally curious species, the growths being quite snake-like in form; it has an erect flower-spike and red blossoms. Mr. Lynch said that this plant is to be figured in the *Botanical Magazine* shortly, as is also a white-flowered, rather insignificant-looking Crassula named C. abyssinica. There were many other interesting plants in this house as in the others.

The Conservatory. — Although decorative gardening is not the primary consideration in a botanic garden, and Mr. Lynch's aims are in sympathy with those of the botanist, he had a very gay conservatory. Amongst other plants in bloom or with fine foliage, were Pelargoniums, Ixias, Babianas, Tritonias, Arisæmas, Hippeastrums, some of the newer Cannas, Celsias, Exacum affine, Tropæolums, &c. Some of Mr. Lynch's hybrid Cinerarias were here, and in other houses. We have already figured some of these, and a batch of them are now in cultivation for exhibition at the hybrid conference to be held at Chiswick in July.

The Stove. —In this structure we noticed, among a general collection of plants, very good specimens of Caladiums, Dracæna Godseffiana, Asparagus Sprengeri, Hæmanthus, Acalypha hispida, and Begonia × President Carnot, a carmine-rose flowered variety, raised, we believe, by Crozy, from B. Olga and B. coccinea. It is one of the most handsome of shrubby Begonias, and cannot be too strongly recommended for cultivation in a greenhouse with an intermediate temperature.

Orchid-house.—The collection of Orchids is not very extensive, but includes a considerable number of the most ornamental species and others interesting to the botanical student. At the entrance Mr. Lynch has erected in cork an imitation of a tree, and from this some of the epiphytal species are suspended; and Tillandsias grow in pockets that occur on the branches. When Cattleya citrina and other species are in bloom no doubt a pretty effect can be thus obtained. In the same house is cultivated a very good collection of Nepenthes and other pitcher-plants; there were particularly good specimens of N. Curtisii, N. Veillardi, remarkable for having a white line under the ring of the pitcher; and N. Mastersiana. The Sarraceniaceous plant, Heliamphora nutans, was observed under a glass case. It is a herbaceous perennial plant, with radical, tubular leaves, having a somewhat oblique mouth, lined with deflexed hairs. The flowers are borne upon a scape, and are nearly white.

The Out-of-door Grounds.—The gardens, which are some 17 acres in extent, possess many interesting and gratifying features. The Bog-garden for instance, a photograph of which was reproduced in *Gardeners' Chronicle*, November 4, 1882, contains and is surrounded by many plants of botanical interest suitable to such conditions as the dampness affords, and the rockery, figured at same time, is attended to with the same care given to the plants indoors. Conifers not unnaturally refuse to thrive at Cambridge, but there are exceptions to this, Biota pendula and Sciadopitys verticillata are capital specimens. By the side of the lake we noticed Asimina triloba, the North American Papaw, apparently thriving well; and also near to the lake were the Toothworts, Lathrea squamaria, and the less common L. clandestina in flower. The first-named species is common in certain localities in Britain, including the Cardiff district of South Wales, where we have seen scores of the racemes in the pleasure-grounds of Cardiff Castle. L. clandestina is found chiefly in the West and South of France, and is usually upon the roots of the Willow. It has a racemose inflorescence and erect flowers, differing from the other species in having a longer lip to the corolla, and angled seeds. It is figured in *Bot. Mag.*, t. 7106, and the differences are there described as very considerable. In colour the flowers are pale violet, and are prettier than those of L. squamaria. At Kew and at Cambridge, L. Clandestina is growing upon the roots of a Willow.

Not far from the lake is a Bamboo-garden, and this is also of much interest, being the forerunner of larger but similar developments elsewhere.

Carex paniculata, with its curious stem of closely-bound roots, and many kinds of bulbous and other plants, are to be seen in the Wild-garden.

But our time did not permit of us dwelling longer amidst the beauty of the grounds; and returning again towards the glass structures, our attention was attracted to a number of the more hardy succulents, growing amid some stones around the walls of the house. Agave utahensis has been in this position for nineteen years. Opuntia Engelmanni, too, was present in extra good specimens.

Mr. R. Irwin Lynch in September next will have been at Cambridge twenty years, and is, of course, an old "Kewite." How he has succeeded in maintaining the tradition and in increasing the reputation of these gardens is shown by the great esteem in which he is held by all connected with the University, and by visitors to his most interesting establishment.

Since Mr. Lynch removed to Cambridge, the whole of the well-appointed glass structures at the present time existent there have been erected, and excepting certain features of the Palm-house and temperate-house, these have been built in every detail in accordance with designs prepared by him.

The collection of plants at Cambridge contains about one-fourth of all known genera, and in recent years a very large number of new species have been figured from there in the *Botanical Magazine* and in our own pages. Indeed, what has been achieved at Cambridge in twenty years, can only be fully appreciated by those who were acquainted with the gardens previous to 1880, and who, therefore, can compare the conditions that then obtained with those so much admired now. That the botanical requirements of the University are fully met may be judged when it is stated that there were furnished from the gardens during last year as many as 137,000 specimens.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM HALLI.

Two distinct sections of this fine Ecuadorean Odontoglossum, the one having a white ground-colour to the lip and the other a yellow ground, are easily distinguishable; but in each section the variation is also very remarkable, and the fact has been well demonstrated by the several extraordinary forms which have bloomed in the collection of Joseph Broome, Esq., Sunny Hill, Llandudno (gr., Mr. Axtell), who again sends some beautiful examples, one of which is remarkable not only for its great size and fine colour, but for marked structural difference in the form of the labellum, which is 2 inches in length and 1 inch across. A striking feature of the lip is the comparative narrowness of the base, and the dilatation of the front portion into an almost cordate blade, fringed in the usual manner. The sepals are purplish-chocolate tipped with yellow, and with a few yellow markings. The petals are yellow, with numerous reddish chocolate-coloured spots, which become larger towards the clear yellow apex. The lip is of a yellow tint, with some red markings on the spiny crest; a long, irregular blotch of dark red colour runs down the centre, and a chain of red markings inside the yellow margin.

It is satisfactory to find exceptionally rare varieties in Mr. Broome's collection, as they are not likely to be lost, a fact proved by the presence in his collection of the original plant of Odontoglossum crinitum which furnished the late Professor Reichenbach with the first living flowers sent many years ago by Mr. Broome from his collection at Didsbury, Manchester.

SACCOLABIUM AMPULLACEUM AND S. CURVIFOLIUM.

Neither of these species are so showy as S. retusum or S. guttatum giganteum, with their lengthened spikes of white and rosy-purple shell-like flowers. Still, S. curvifolium with its scarlet-orange flowers, borne on erect spikes, reaching in some cases 8 to 10 inches in height, is by no means valueless in the Orchid-house. S. ampullaceum when well grown has dense, erect, densely-flowered racemes, 6 to 8 inches long, and the beautiful deep rose colour makes them very attractive These two species flower in May and June, and by careful management the flowers will remain perfectly fresh for three or four weeks, and no harm will be done to the plants by permitting the blooms to remain for that length of time. These species are best when grown in baskets, with but little moss about them, and suspended from the roof of the East India-house, in a part where the light is fairly strong, but at the same time free from direct sunshine. I have found these plants succeed where the air was fairly dry; and the moss or compost in the basket should not be kept in a constantly wet state. If they were grown in a Croton-house or Pine-stove, and shaded from direct sunshine, I am sure many who now have small or dwindling plants would find them strengthen considerably. Of S. curvifolium, there is a yellow form, not, in my opinion, so good as the original; and of S. ampullaceum there is a variety named moulmeinense, that has larger flowers of an intense rose colour, set on longer and more dense spikes. The leaves of this variety are dark green, furnished with many small spots of brown, chiefly found on the upper sides of the leaves. *W. S., Exmouth.*

ASTER NANSHANICUS.

THIS lovely Aster (fig. 120, p. 331), described by C. Winkler, from north-western China, flowers from June until late in October. It is the earliest of this group, so far as I know of. The rays are pale lilac, like those of Aster alpinus, and the disc is of a bright yellow tint. The plant, which is much branched, grows about 2 feet high, and of the same diameter. It flowers in a loamy soil, as well in the brightest sun as in the shade of large trees. Seedlings from June sowings flower the next summer. The small rays may, I think, by due selection, become broader, as it is a species that varies very much. *U. Dammer.*

SOME NEW RHODODENDRONS.

RHODODENDRON DILATATUM.—This species is one of the Azalea section of the genus, and is one of the latest new plants introduced from Japan. It flowered at Kew in the spring of 1898, but not well; this year, however, it has improved, and we are now enabled to judge better of its value. It greatly resembles R. (or Azalea) rhombicum, and the Japanese botanists have confounded the two species under one name. It has the same rhomboidal or lozenge-shaped deciduous leaves, arranged in verticils of three, and the flowers are of the same shade of bluish-purple, but they are larger in R. dilatatum, and about 2½ inches across, appear three weeks earlier, and above all, they are distinguished by the stamens, numbering five, to each flower; whereas in R. rhombicum there are always ten. Another distinction is afforded by the capsules: in the present species they are glabrous, but furnished with scattered glands; whilst in R. rhombicum they are covered with greyish hairs. In garden value this species will, no doubt, equal the very beautiful but still rare R. rhombicum, of which a fine specimen is now charmingly in flower at Kew. It is remarkable that two species bearing so close a resemblance to each other should differ so markedly in the number of stamens—a character on which the older botanists relied for differentiating Azalea and Rhododendron. R. dilatatum is a native of the Senano province of Japan. A figure of it has been made for the *Botanical Magazine*.

R. Przewalski. — The number of species of Chinese Rhododendrons unknown to cultivation in this country, except by dried specimens, is very great; almost every year sees one or more added to our collections. Quite recently this species has been introduced to Kew by way of St. Petersburg. It is one of the true evergreen Rhododendrons, and appears to have been collected first by Przewalski in the Kansu province of China, in 1872. It has not yet flowered here, but its flowers are white, and produced twelve to fifteen together in a corymbose raceme, the corolla being campanulate, with five roundish emarginate lobes. The calyx is small and glabrous. The leaves are leathery, and 3 to 5 inches in length, and the species attains a large size. Of its possible value in gardens nothing can yet be said, but it is doubtless quite hardy. It may be interesting to place its introduction on record.

R. rubiginosum.—One of the names that will always be intimately associated with the discovery and introduction of Chinese Rhododendrons is that of the Abbé Delavay. It is to him that the credit of the first discovery of this species belongs. He

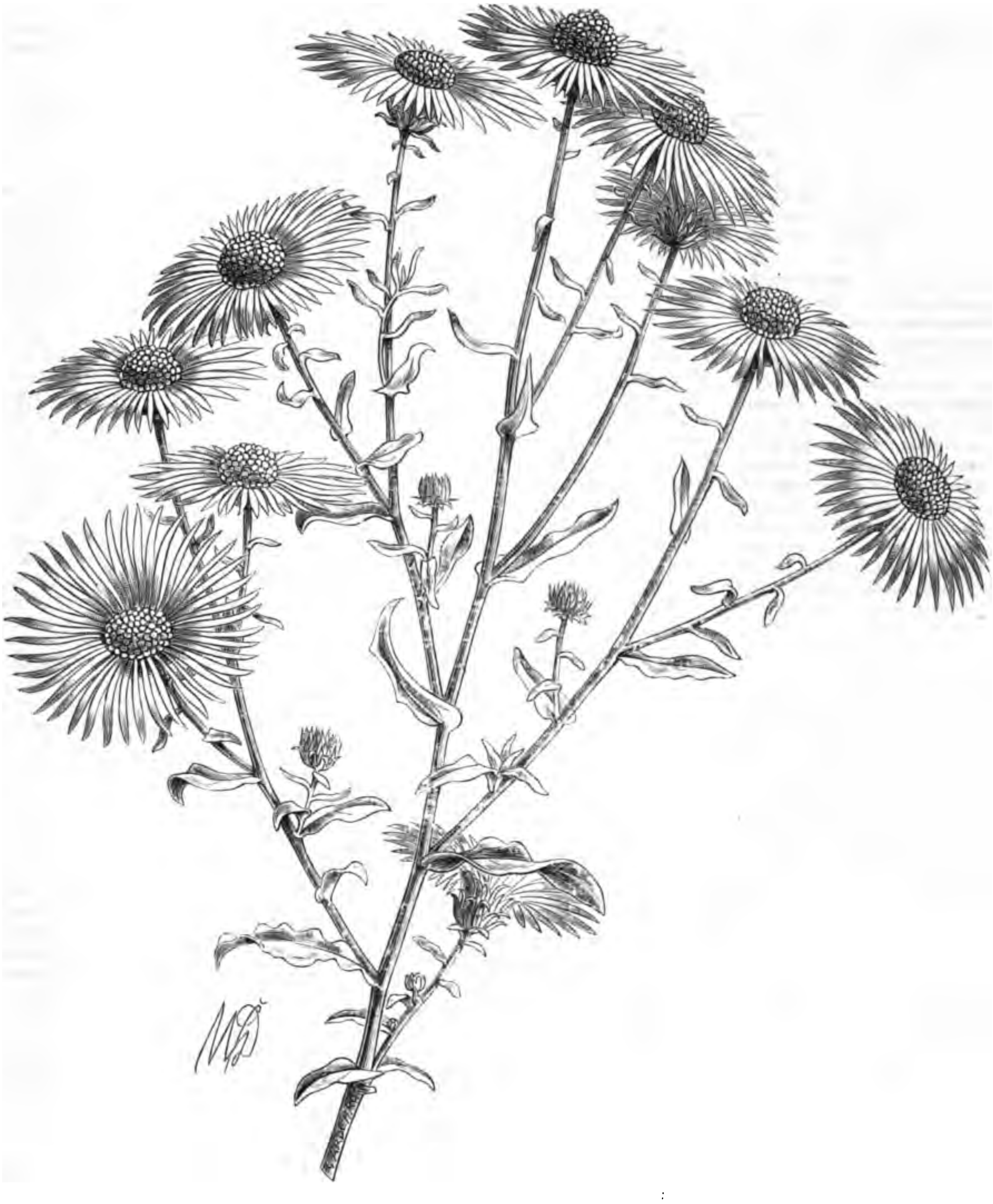

FIG. 120.—ASTER NANSHANICUS (C. WINKLER). NAT. SIZE. (SEE P. 330.)

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found it about fifteen years ago on the Tsang-chan mountain in Yunnan, China, at an elevation of 8,200 feet above sea-level. It flowered for the first time at Kew last year, when it was figured in the *Botanical Magazine*, t. 7621. It is just now passing out of flower for the second time, and, judging by this year's experience, it promises to be a really useful addition. The plant is at present a bush 2 feet to 3 feet high, of compact and rounded habit, the leaves being 2½ inches to 3 inches long, dark and glossy above, but covered thickly beneath with rust-coloured scales. The flowers appear in small, terminal trusses of four to eight blooms, the funnel-shaped corolla being 2 inches across, rosy-lilac, spotted with maroon. During the middle and latter part of April it was literally one mass of flower, and was not injured in the least by frost. It has much the same stature and general character as the North American R. punctatum, but comes into flower some weeks earlier. This year it outrivalled all the dwarf Rhododendrons flowering at the same time out of doors.

R. yunnanense.—Of all the new Chinese Rhododendrons that have yet flowered in this country, it is probably R. racemosum, shown so prettily every spring by Messrs. Veitch, that takes one's fancy most; but next to that, I think this species is the most attractive. As its name indicates, it comes from the Chinese province of Yunnan, where it was discovered by Delavay. It is just coming into flower now for the third time at Kew, but owing to insufficient material in the herbarium there, was not identified till last year, when M. Franchet recognised it as the species described by himself from Delavay's dried material, and named as above. It is a shrub with slender branches, and is rather thin and open in habit. The leaves, which average from 2 to 3½ inches in length, are lanceolate, the upper surface being furnished with short, bristly hairs, and the lower one, which is somewhat glaucous, with glandular dots. The flowers are in a terminal corymb, four to six together, each flower 2 inches across, of the most delicate lilac shade, marked with two clusters of blood-red spots. This Rhododendron may become popular in time, for it is evidently quite hardy, can be increased easily by cuttings, and has a delicate beauty quite distinct from any other. It is at its best during the latter part of May. *W. J. Bean.*

SOUTH AFRICAN NOTES.

JOHANNESBURG.

(Continued from p. 293.)

Ten years ago, when these gold fields began to develop, new-comers beheld a tract of country as flat as Salisbury Plain, and quite destitute of timber trees, for the only trees the old Boer settlers planted were Weeping Willows, and these close to their houses. It was reported to be too cold for Australian trees, and some hesitation was felt in planting them. Beginning with a few Gums and Wattles, these grew so well, that soon large plantations were set out, with the result that there are to-day millions of thriving trees, 50 to 70 feet high, which have already given a considerable return in firewood and fencing-posts. This is very much better than burning dry cow-dung, which was the primitive Dutch fuel.

The growth of some trees is very remarkable. Recently I thinned out a small plantation of Eucalyptus viminalis, which I planted five years ago at 6 feet apart, the young seedlings being then 6 inches high. I carefully measured one tree; it was 60 feet high, and 1 foot in diameter close to the ground. The Blue Gum does not grow quite so fast as this, but I believe the timber is more valuable. The Silver and Black Wattle and Blackwood, viz., Acacia dealbata, A. mollissima, and A. melanoxylon also do well and soon grow into timber, but it is rather cold for Grevillea robusta and Casuarina tenuissima. Amongst Pines, P. insignis comes first in rapid growth and perfect health, then follow P. Pinaster and P. halepensis, but Pinus pinea does not seem happy, and P. sylvestris refuses to grow. Larches, Spruces, Yews, and Silver Firs are not successful—the air seems too dry for them. Nearly all the Cypress tribe thrive, particularly C. macrocarpa and C. Lawsoniana, but tender species like funebris are very slow. Junipers do well, particularly J. bermudiana. [What is this? Ed.] Cedrus Deodara makes a very fine tree indeed; if our Government ever establishes State forests this is a tree which should be largely planted. Sequoia gigantea does very well, yet, strange to say, in the warmer parts of Natal it is a failure. Japan Conifers do not seem at home in our dry air, but most American and Chinese Arbor-vitæ promise well. I have not seen an Araucaria imbricata or a Cedar of Lebanon, but a few large Cunninghamia sinensis are to be met with; Taxodium sempervirens and T. distichum grow very slowly.

Of deciduous trees, the English Oak does very well if sheltered from wind when young. American Oaks are just being tried. Ashes, Birches, Maples, Ailanthus, Planes, Alders, Paulownias, Catalpas, Walnuts, Tulip-trees, Poplars, and Elms we find grow fairly well if care be taken to afford them a deep and somewhat moist soil. Beeches, Limes, and the Horse-Chestnut do not thrive. The Spanish Chestnut promises very well. It must be borne in mind that the above remarks apply to my own locality, which is 6000 feet above sea-level. Lower down very many valuable timber-trees could, I have no doubt, be grown with success. So far as tested, the timber grown here is dense and hard, and many of the trees bear good seed in quantity at an early age.

In the low "veld," between 2000 ft. and 4000 ft. elevation, great natural forests of evergreen-leaved sub-tropical trees are still found, comprising such genera as Podocarpus, Calodendron, Bauhinia, Olea, Oreodaphne, Myrsine, &c.; but these would never withstand our severe winter.

The Transvaal is somewhat larger than Great Britain and Ireland, yet outside a ten-mile radius from where this is written the country is little better than a wilderness, except in a few spots where intelligent men have settled. I have for the last eighteen months in the columns of our leading paper urged the Government to establish state forests; but no one seems to pay the slightest attention, and, like Dean Hole in his *Book about Roses*, I have been "perplexed and pained by their dogged, strange reluctance to follow the very best advice."

When the old Boer settlers began to "trek" into this country, sixty years ago, from the Cape Colony, they brought in their wagons Apricot, Peach, and Almond-stones (but no Plums or Cherries), Fig, and Apple and Pear suckers, Quince, Pomegranate, and Vine cuttings, and forthwith they planted and watered the same. The result I have seen in old orchards—seedling Apricot and Almond-trees, from whose trunks you could cut 12-inch planks; but the fruit is very small, and inferior in quality. I have seen Fig-trees of such a size as would astonish even a Californian fruit-grower. Seedling Peaches, yellow, white, and red-cheeked, bearing very large and delicious fruit. Apples of very inferior varieties, but the trees growing to a huge size. Hedges of Quinces and Pomegranates bear superlatively fine fruit. There are no Plums or Cherries, and very few Nectarines. Huge Pear-trees of one variety only—Saffrano or Cape Saffron. Lastly, there are one or two hardy varieties of Vines, whose fruits are able to withstand the rains, which fall at a time when the berries begin to colour.

An Opportunity for Development.

Thus it will be seen that there is vast room for improvement, for until about ten years ago grafted fruit-trees were seldom planted in this country. A new race has entered the Transvaal, who ask for, and are willing to pay good prices for, really good fruit, yet to-day we see in our shops Cape Plums, Californian Prunes, American-canned Peaches, Australian jams, and even Tasmanian Apples, which last are retailed at 3s. per dozen! Again and again I have urged by example and precept the introduction of a better class of fruits, such as Japan Plums, Californian Prunes, improved hybrids of North American Grapes, Persimmons, and good-worked varieties of Peaches, Plums, Pears and Apricots, but up to now I cannot see that much is being done. The above-named fruits thrive in the higher and colder parts of the Transvaal; further north, and between 2000 feet and 4000 feet elevation, Lemons, Mandarine and other Oranges, Citrons, Gourds, Custard-apples, Loquats, Melons, and Tree-Tomatos bear abundantly. Lower down, again, near Barberton, at 1000 to 2000 feet, we find Bananas, Pine-apples, Mangos, and every tropical fruit. In this locality, owing to the severe winters, insect pests are not very troublesome.

In everything that relates to the collection and spreading of information about fruit-culture—for instance, what is being done in California and Australia—we are living in the dark ages. There is not a botanic garden, model farm, experimental station, fruit-growers' association, farming or gardening paper in the Transvaal. The methods of the old Dutch fruit-growers are primitive enough to raise a smile of compassion from father Adam. At the Cape, considerable efforts are being made—in which Mr. Rhodes is taking a good share—to raise a superior class of fruits to supply the European winter market, i.e., from December to April. We have no such high ambitions at present; the object being to supply the local demand, which is the best in South Africa. I commend fruit-growing to the attention of practical men who think of coming to this country.

Wonderful as the progress of the Transvaal has been during the last ten years, yet really and truly it has only been scratched over. Very much of the mineral wealth has been untouched, whilst its horticultural resources are still lying dormant. It is a country of infinite capabilities, and those who have known it longest have the greatest faith in its future, in spite of the unsatisfactory state of politics at the present time. *R. W. Adlam, Joubert Park, Johannesburg, Transvaal.*

KEW NOTES.

Hippeastrum Arechavaletæ.—A new species of Hippeastrum was described by Mr. Baker in the *Kew Bulletin* last year, p. 226, from material supplied by M. Cantera of Montevideo, Uruguay. A plant of it is now in flower in the T range at Kew, and a figure will shortly be published in the *Botanical Magazine*. In general characteristics it comes very near H. vittatum, as figured in the *Botanical Magazine*, t. 129 (1790). The only difference I can see is in the margins of the segments being crimped in H. vittatum, whilst in H. Arechavaletæ (a terrible name!) they are plain. The plant at Kew has a round dark brown bulb, 2 inches in diameter, a short, thick neck, and six leaves, 18 inches long by 1¾ inch wide. The scape is cylindrical, glaucous-green, 2 feet high, and it bears an umbel of three flowers; pedicels, 1½ inch long; corolla narrow, funnel-shaped, 4 inches long, 2½ inches across the mouth, white, with a pair of broad broken bands of crimson running parallel almost from base to apex of each segment. It is a pretty plant, although it falls short of the breeder's ideal of a good garden Hippeastrum. The name is in compliment to Professor Arechavaleta, a botanist in Montevideo.

Clianthus Dampieri.

A plant of this beautiful greenhouse shrub is now flowering freely at Kew, where it is planted in a border of light loamy soil, and the stems trained against the roof-glass in an airy, sunny greenhouse. It has grown here with exceptional vigour, covering a space a yard square in less than two years, and it is now bearing a dozen large bunches of flowers. Usually this plant is grown in a pot of sandy-peat soil, but it rarely grows to flowering size, owing, it is thought, to its objection to anything like a heavy watering. Judging by the behaviour of this Kew plant, what it likes is plenty of root-room, and that uniformity of conditions which can be easily supplied in a well-drained border. In the same house and under the same conditions, the beautiful Californian Lathyrus splendens, figured in the *Gardeners' Chronicle*, 1897, vol. xxi., p. 315, has been a success for three years, and is again now flowering freely. *W. W.*

GUNNERSBURY PARK AND HOUSE.

The two domains, Gunnersbury House and Gunnersbury Park, Acton, are now substantially one. This is a reversion, no doubt, to the order of things which prevailed at the time when the Princess Amelia occupied them. The original mansion occupied by the princess was built for the celebrated Serjeant Maynard in 1663 by Webb, a pupil of Inigo Jones. In 1761, it was purchased for the Princess Amelia, after whose death it was sold in 1788, and some years afterwards it was entirely pulled down. It may be assumed that Webb's mansion occupied a site a little way north or east of the present mansions, and, perhaps, midway between the two, for the old wine-cellars, still intact, occupy some such position, but nearest to Gunnersbury House.

After the removal of the original mansion, the estate appears to have been divided, and one portion—about seventy acres—passed into the possession of Alexander Copland, Esq., who erected a villa, "surrounded by extensive and ornamental gardens and pleasure-grounds, which comprise about seventy acres." This would appear to have been the Gunnersbury Park, which subsequently became the property of Baron Lionel de Rothschild, who made considerable additions to the estate by subsequent purchases, and laid out a very large piece of ornamental ground, extending almost to Kew Bridge, and which is now known as the Potomac. The other portion of the estate, presumably that occupied by the mansion and grounds of Gunnersbury House, became the property of Stephen Cosser, Esq., who erected a villa about 1810. Eventually it passed into the possession of Thomas Farmer, Esq., who was formerly the Treasurer of the Wesleyan Missionary Society, and on the west side of the mansion he erected a hall as a museum, and filled it with momentos of missionary operations. H. J. Atkinson, Esq., married a Miss Farmer, and sold the estate to the Rothschild family.

An Ivy-clad brick wall which divided the two estates has now been removed, and the carriage-drive from the main entrance in Gunnersbury Lane to Gunnersbury Park is extended in an eastern direction, and by means of a bold curve is continued to and unites with the drive to and from Gunnersbury House, which has both entrance and exit on the east side, and so a complete carriage connection between the two mansions is secured. The construction of this drive demanded the removal of many large shrubs and some trees, but the subjects removed have been utilised in other parts of the grounds. Beyond the ornamental water on the Gunnersbury House side, Mr. Hudson has made an imposing garden of semi-aquatics, and carried out other improvements in various parts, now approaching completion.

The effect of these improvements, in the direction of adding seeming extent to the grounds of both the park and the house, is something astonishing. To one standing upon the terrace of the mansion of Gunnersbury Park, and looking eastward, the grounds of Gunnersbury House appear to reach away to an unlimited extent, because the wall forming the eastern boundary is quite hidden from view; an unbroken carpet of verdant lawn stretches away to the boundary on every hand. One standing on the terrace of Gunnersbury House notices the same, only that the vista is longer and wider to the eye. Fine trees that were hidden from view by an under-growth of shubbery are now individualised. Mr. Reynolds has worked out, on his side, certain details of improvements, that small in themselves yet largely assist the general effect. One result of these improvements is that Gunnesbury will become the residence of members of the Rothschild family for some portion of each year.

In reference to matters of practical gardening, both places are full of interest. Mr. Reynolds is making an experiment with plants of Tropæolum speciosum in pots, for the purpose of training them on trellises. May he succeed in flowering it abundantly!

The Peach-wall, in a line with the Fig-cases, has been covered with glass, and within it there is promise of good crops.

Evidences of Mr. Reynolds' attention and forethought are met with throughout the pleasure-grounds. Gunnersbury is seen to great advantage at all times, but chiefly in May and June. *D.*

Fruit-trees in Pots at Gunnersbury House and Syon House.

Recently I made a visit to Gunnersbury House, in order specially to gratify my curiosity in regard to the fruit-trees in pots. "This has been," said Mr. Hudson, "the worst season for the setting of fruit that I have ever experienced, and this, too, with a mild winter, which is difficult to understand by those who do not force fruit very early, and have a much clearer atmosphere to deal with than that of West London." I have no wish to publish my own failures, but when whole houses of Vines and Peaches are lost during a few days' fog, it will be understood that it is not a happy position to be in;" and I was rather anxious to see how Mr. Hudson's pot-trees had fared. The earlier-forced trees this season are not carrying nearly so good a crop as in former years. The trees were full of bloom, but it failed to set satisfactorily. For this reason, the Gunnersbury House fruit-trees will not appear at the Temple Show. Now, had this show been some weeks later, there could have been a grand lot of trees staged from thence, as these later-flowering trees were not affected by fogs.

In the earliest house the new Nectarine Cardinal is the favourite variety, and some of the trees had been cleared of their fruits; still, as a whole the crops on the various trees were lighter than usual. There is a fine lot of trees of this variety, and there can be little doubt as to its good qualities as a forcer, but it is not proof against weeks of foggy weather. In this locality we suffer much in January and February with fogs, which in the latter month cause much loss of bloom on Peach and Nectarine trees, and cause the bunches of Grapes to curl up, and turn of a yellow tinge. Unfortunately, as late as March 28 we had in this locality fogs, the last one destroying a large houseful of Muscat Grapes at Syon just as they were coming into flower. The splendid tree of Lord Napier Nectarine at Gunnersbury House, which fills a forcing-house, is not nearly so good as usual owing to the fogs and lack of light; and the earliest Peach-trees in pots at that place have suffered similiarly. The best this year are early Grosse Mignonne and Dr. Hogg; the latter though not a very early variety is much liked for pot-culture, and is very fine in later houses. As a variety that withstands hard forcing without injury, Early Beatrice is excellent here, although when grown at Syon in the open air I do not like it, the fruits being too small, and prefer Waterloo. With the high cultivation afforded pot-trees in general, Mr. Hudson gets remarkably early nice fruits of this variety. In the early-house, which has a span roof, a shelf of Auguste Nicaise Strawberries was noted in full crop with fruits mostly ripe—and such Strawberries! many of them weighing 2 ounces apiece.

Leaving this house I entered a Cherry-house filled with trees in pots. The later varieties were ripe, and though affected by lack of sunlight the trees had blossomed during a spell of fine weather, and were comparatively none the worse; the trees were very fine ones. Bigarreau de Schreken is much liked here, and some of the fruits were as large as Walnuts, and good in colour; Governor Wood, a grand cropper, is grown largely; and the trees of Early Rivers, which is much liked, were cleared of fruits. Guigne Annonay is considered to be one of the best forcing black Cherries, a very rich-flavoured fruit. Of other varieties I may mention Frogmore, Early Bigarreau, and Emperor Francis, the latter a very fine Bigarreau. In this house some trees had been planted at the foot of the pillars supporting the roof, so as to train them in cordon form along the ridges of the house. These trees will not obstruct the light, and they will be profitable. In the second early house were splendid trees of Plum, Peach, and Nectarine. The varieties of Plum are Early Rivers, the fruit of which was nearly ripe and the crop excellent; others consisted of Jefferson, Early Transparent Gage, and Reine Claude de Bavay, also a Gage, all of which will be ripe shortly. Plums are certainly reliable fruits under pot-culture, blooming as they do at different periods. There is a row of Early Rivers Nectarine trees occupying one side of the house, quite young trees, averaging twelve fine fruits apiece. In this house, the varieties Pine-apple, Humboldt, Advance, Rivers' Orange, and Victoria, the first-named being the favourite late variety. Dr. Hogg Peach is largely grown, and good crops were noted of Sea Eagle, Early Mignonne, Crimson Galande, and the Nectarine Peach, the two latter being much liked for late use. A Strawberry-house divides the next or later division of trees in pots, and the plants were finishing a heavy crop of fruit. Royal Sovereign, though not so large as the Auguste Nicaise, carried a fine even crop; and Vicomtesse Héricart du Thury is grown in some quantity for its fine flavour.

The trees in the late house are just as remarkable for their heavy crop of fruit as the earliest is for their light one. I noted Ickworth Impera-trice, Late Transparent, Late Rivers, Golden Drop, Grand Duke, Monarch, Guthrie's Late, and Golden Esperen. The Peaches most noticeable were Nectarine, Sea Eagle, Golden Eagle, Osprey, Barrington, and Stanwick Elruge. Figs in pots have been ripe since February, and are a specialty here. Large numbers are forced early and late; the early kinds are now making their growth for the autumn—a remarkably healthy lot of trees. As most gardeners know, the forced Fig-tree is apt to get leggy and unsightly, so the gardener at Gunnersbury House cuts them hard back after the fruiting is over, and places them in a small house or pit, where, with generous treatment, they make shapely fruit-bushes, fit for bearing another season. The St. John and Pingo de Mel are the varieties employed.

Another house or pit is devoted to other varieties for fruiting in October to December, the varieties being Negro Largo, Nubian, Grosse Verte, and Bourjassotte Grise, all robust and healthy trees. A north house or lean-to is filled with Pear and Apple-trees in pots, and this house is also used at times for retarding fruits. I noted fine trees of Pitmaston Duchesse, Doyenné du Comice, Princess, Marie Louise d'Uccle, &c., well set with fruits.

No note on pot-trees would be complete without referring to the splendid lot of fruiting Vines in pots. I have never seen better Foster's Seedling, and the canes had carried a heavy crop of bunches. The Black Hamburghs were good. *G. Wythes.*

CORFU.

The following communication contains the impressions of a member of the medical profession who made a pleasure-trip to the island in March last, which may be of interest to some of our readers. "We may premise that the people, although for a long period of time they have been in connection with us, are very simple in their mode of life, and hotel or other accommodation away from the town of Corfu is, according to western ideas, non-existent. Those who are not prepared to exist on the simplest fare would do wisely to take sufficient stores with them to suffice for the length of their stay, and some one to cook the food, if they do not care to undertake to do that themselves. The climate in the early months of the year is very pleasant, but the nights are cool, and even some snow fell during the visitor's stay. The sleeping arrangements leave much to be desired, the bedding which is generally obtainable having been found very insufficient during the cold weather prevailing in early spring.

"The island of Corfu is divided into three zones by two ranges of mountains, rising about 2000 feet above sea level, rocky and naked. The greatest breadth is twenty miles, and the length thirty-eight miles. The valleys show great fertility, and they are watered by many streams. The southern zone is sparsely populated, and nothing but Olives, a few Orange trees, Vines, and Myrtle were noted. Daisies, Lilies, and much Holly were plants that are found everywhere. The northern zone we did not go into, but I should think it was very similar to the southern from what we saw from the sea, and looking down from the northern range of hills, excepting that it is more mountainous. The central part, in which is the principal town of Corfu, is much the more level, thickly populated, and fertile. The chief features were a great many Orange groves, Olive plantations, and Junipers were remarked; Aloes and prickly Pear (Opuntias) forming the hedges; the Fig, Almond, Eucalyptus Globulus, which does very well, wild Roses, Ericas, Date Palms (these do not fruit), Cacti, Arums, Hyacinths, Violets, Lilies, Holly, Ivy, Nasturtiums, and Pinks. Lombardy Poplars and Plane trees were remarked. The vegetables consisted of Cauliflowers, Potatos, Lettuce, and Globe Artichokes. The town was planted with trees which grew well, but there was none along the country roads.

"We noted but little gardening in the town or suburbs. A few gardens were noticed in which were Roses, Bananas, Strawberries, Hyacinths, Arbutus, Myrtle, and Stocks. No window-boxes or creepers on the walls of the houses were observed.

"In the royal gardens, which are under the management of Chevalier Josef Bouzzai, were noted the following as trees or bushes:—Laurus nobilis, Mespilus japonica, Pittosporum Tobira, Oleanders, Robinias, Arbutus Unedo, Chamærops humilis, Cedrus Libani, Populus discolor [?], Thuia plicata[?], T. pyramidalis, Araucaria imbricata, Ailanthus glandulosa, and other common subjects. We spent a fortnight very pleasantly in exploring much of the island, and would recommend it to those who may be contemplating a short outing, as being at the least for the present out of the ordinary track of the tourist."

AUSTRALIAN *v.* SWEDISH TIMBER.

"ONCE upon a time," writes a correspondent, "being engaged in getting up figures respecting the use of Australian timber in this country for road-paving, I applied to a certain Agent-General, who suavely referred me to a timber-merchant in the East-End, as being the gentleman entrusted with the business of that department for this country. 'He would furnish me with all the information that could be given;' and so it came to pass that it was soon found no information would be given; it was not to the advantage of the firm in question to furnish such figures, and so forth. Occasionally, however, we—in spite almost of the Board of Trade Returns—get at the value of Australian timber used here as compared with Swedish; and only the other day the St. Pancras Vestry issued a report, concerning, amoug other matters, the use of Australian wood in the streets of that parish. It appears that, seven years since, a large portion of the Euston Road was paved in sections with Swedish and Kauri Pine-blocks; but the Swedish blocks broke up so rapidly, that they had to make way for the Jarrah timber. It is found that the hard Australian wood lasts longer, and decreases splashing. Were it not that an agreement exists with the Tramways Company for the maintenance of sundry long roads by the use of granite setts, the whole area would be laid down in blocks of the above material. Doubtless an early agreement will be arrived at by which Australia will win, and granite setts be put aside. *E. C.*

SUMMER-QUARTERS FOR CERTAIN EXOTIC PLANTS.

As a means of ensuring clean and healthy growth of many of the larger exotic plants, a great deal may be said for the practice of growing them in the open, when the temperature outside permits of doing this without injury to them.

Palms and strong-growing greenhouse Ferns are much benefited by passing a month or two in the open air. Among Palms which may be treated in this manner are Trachycarpus excelsus, T. Martiana (khasyana), Chamærops humilis, Erythea armata, Seaforthia elegans, Livistona chinensis and L. subglobosa, Phœnix spinosa, P. reclinata, and P. dactylifera. Palm-leaves lose their green colour under strong sunshine, and need therefore a moderately shady place. It would be found that if placed in such a position in the middle of the month of June, the petioles would be somewhat shorter, but stouter than those of indoor plants, the leaves broader and of a dark green hue, and the plant generally enabled to withstand with less harm the conditions prevailing in living-rooms throughout the winter. As many gardeners who grow Palms for dwelling-house decoration only have high houses for their Palms, the more compact, stocky growth induced by open-air treatment is a great advantage.

Ferns, the hardier evergreen species usually grown for decorative purposes, would "summer" outside very satisfactorily if placed under the shade of trees in a sheltered spot. Asplenium bulbiferum, Pteris tremula, P. umbrosa, and Gleichenias of sorts, among others, would grow very clean and hardy, and the vigour they would show would carry them safely through the winter and spring. Ferns at Isleworth grown in this manner last twice as long in good condition as those taken direct from the house. Portable Tree-Ferns would benefit by a short stay outside during very hot weather, as it is no easy matter for the gardener to keep down the insect pests which affect these plants throughout the summer. Dicksonias antarctica, squarrosa, and fibrosa, Cyathea medullaris, C. insignis, Alsophila crinita and excelsa, would all be better able to stand over the winter if the fronds were exposed to the open air, and thereby hardened somewhat. It would not be difficult to find nooks and corners in most gardens suitable for Tree-Ferns of the hardier group. Cyatheas and Alsophilas, from their natural habit of throwing up one or two fronds at a time, are frequently allowed to grow too late in the year, so that the fronds cannot thoroughly mature, and, as a consequence, they either rot or remain on the plant an eyesore for a considerable time; if moved outside in July or August for a few weeks, the plants ripen somewhat, and are cooler beneath the shade of a tree than if left in the house, unless it is shaded only during actual sunshine. By the process of ripening, i.e., hardening, the tendency to grow late in the year is considerably lessened. I have watched the Tree-Ferns at Kew in the temperate-house for three or four years, and have noticed that if late fronds are thrown up they rarely develop properly; in two instances the fronds rotted before they had uncoiled, owing to the foggy weather prevailing at the time, and in spite of careful cleaning out of the decayed frond the stem soon decayed likewise.

Among Orchids, such plants as Vanda Amesiana, Lælia anceps, and Oncidium incurvum do well outside, a moderately sunny place for the two former plants would suit them; a cool, shady place for the Oncidium. Oncidium incurvum is perhaps easy to grow in a cool-house, but to show how much better it grows outside I give the following measurements: the plant measures 2 feet through, and produced eight panicles, averaging from 3 to 4 feet 6 inches in length, with an average of from thirty to fifty secondary axes, bearing from four to eight flowers each. Roughly calculated, this would denote about 2000 flowers. It was put out in the latter end of June, and is generally taken inside towards the end of September.

Crinums.—C. scabrum, C. giganteum, C. latifolium, C. Moorei, and C. capense all do best outside under the shade of a tree (a Weeping Holly is used for the purpose at Isleworth); if grown in a house the whole of the summer, thrips do a great deal of damage to them, and it is scarcely possible to keep them down unless insecticides are used to a dangerous extent. Under the shade of a tree they grow well and produce fine flowers. It is not safe to place them in the open, as on clear cold nights radiation lowers the temperature to an unsafe degree, but under a tree radiation is much arrested, and on the other hand, an excessively high mid-day temperature is guarded against by the shade the tree affords. If thrips prove troublesome outside, as they have done this past few weeks, it is advisable to totally immerse the plants for a few hours. Places in the front of walls facing south are well suited for Phyllocactus, Cereus, &c.; plants in such places make stout well-ripened growths which flower freely, and rambling Cereus do best. The columnar ones, and Echinocactus are liable to injury on wet days from moisture lodging in the apex, always a susceptible spot with them. Many of the decorative Aloes, and the whole genus Agave, would do in similar places when not too bulky to remove.

Himalayan Rhododendrons, always difficult to keep cool enough during hot days, would be well suited if places could be found for them slightly shaded from strong sunshine and protected from drying winds by a shrubbery or fence. They grow much better in the open from June to September. A skeleton-house is really best for them with only thin blinds for protection from the sun's rays; they are never so happy as when grown in some old defile in the southern counties, between cliffs, cool and moist. Rhododendrons, like all the Ericaceæ, dislike a confined atmosphere, and would well repay the trouble of placing in some perpetually-moist and cool corner of the garden.

The beautiful Tecomas are very difficult to flower in a house, but if they are grown on one stem and treated as are Chrysanthemums, many of the plants will flower late in the autumn; the mealy-bug trouble with these plants is greatly minimised by this treatment—in fact, many of the South African and Australian hardwooded plants can only be grown well summered outside, among these may be mentioned Eugenias, Pimeleas, Grevilleas, Plumbago, Bankaias, Ericas, Mesembryanthemums, and the large number of Cape-flowering bulbs.

A plot of ground, covered with coal-ashes, fenced in from observation, and to protect from cold and drying winds, near a few big trees which would shade one portion of it most of the day, would prove a great boon to any garden for the purpose of growing plants during the summer. It is a practice in our garden to place together the plants whose requirements are akin, simply placing them on the coal-ashes, or plunging them in the same in batches by themselves. *Geo. B. Mallett, Isleworth.*

TREATMENT OF MILDEW ON VINES.

I HAVE just been successful in stamping out a very bad attack of mildew on Vines, the remedy being very hot water. The mildew occurred here for the first time two years ago, when a Lady Downes Seedling Vine became seriously affected. The usual remedies, sulphide of potassium in solution, dusting with sulphur, &c., stayed its progress for a time, but it eventually showed itself on most of the Vines in two vineries before the end of the season.

Last year the usual preventatives were used freely during the early stages of the Vine's growth, the pipes were painted with lime and sulphur, and sulphide of potassium solution was sprayed over the leaves and various parts of the houses two or three times a week till the Vines flowered. It was then discontinued until flowering was over; but in the intervening time mildew made its appearance all over the Vines in the houses previously affected, and the case from that stage became hopeless, in spite of continued syringing with the solution and dusting with flowers-of-sulphur, the crop being completely spoiled.

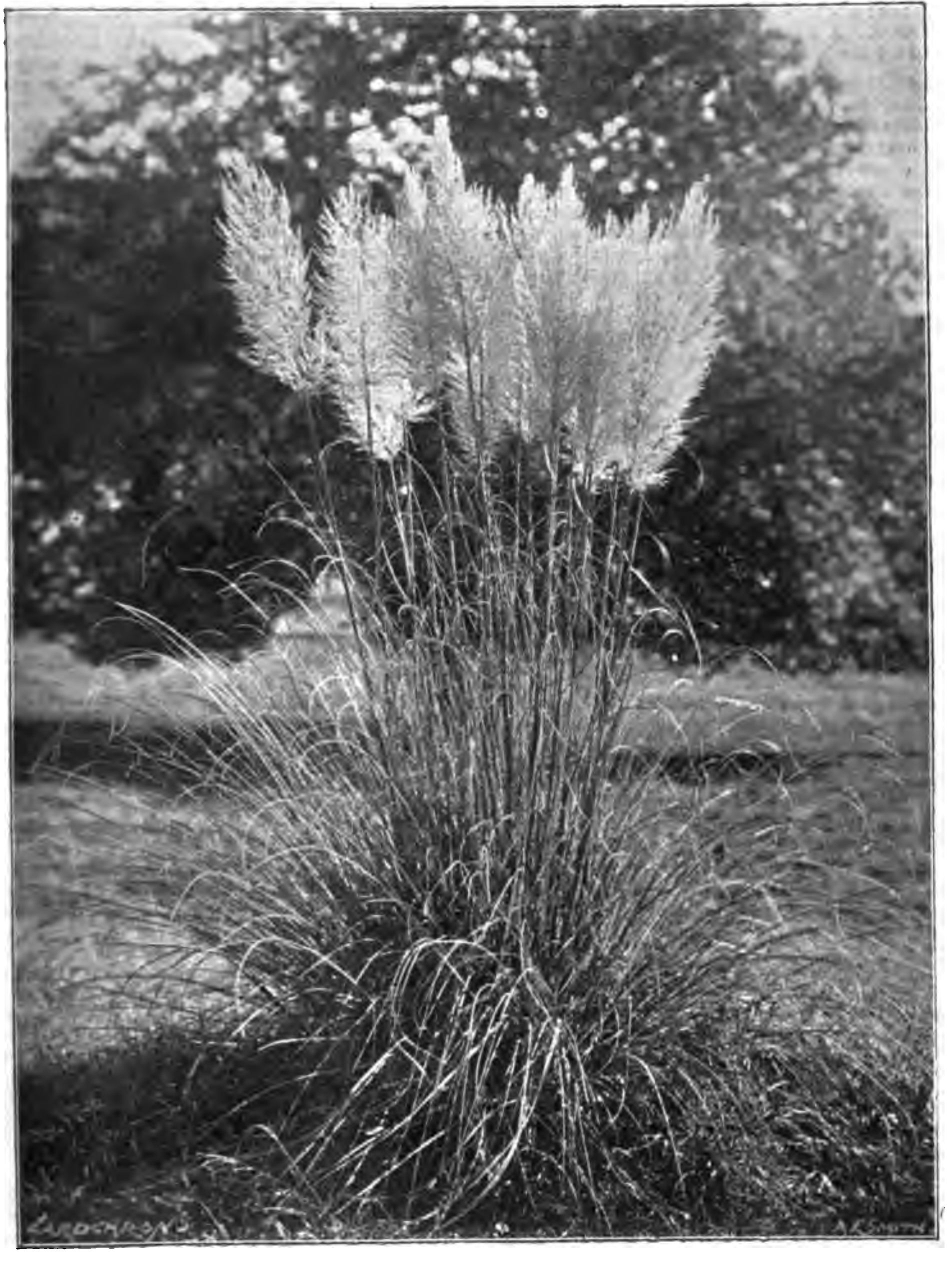

Fig. 121.—Cortaderia Lambleyi foliis variegatis, in Mr. W. E. Gumbleton's garden.

Early this year the vineries were thoroughly cleaned out, the top spits of the borders and walks were removed and taken away, and new soil replaced. The rods of the Vines were painted with a strong mixture of sulphur and potassium sulphide, but with little effect, as mildew again broke out in several places when the Vines in the early house had reached flowering stage. Drastic measures became necessary, and it was suggested to me to try hot-water syringed over the plants, at the risk of killing them outright. Water was accordingly heated to boiling-point a distance of 60 yards away, carried quickly to the vineries, and forcibly applied to the leaves scalding hot, the operator holding the syringe quite under the leaves, the barrel of the syringe being enclosed in a towel to protect the hands. The Vines were thoroughly soaked twice over, the surfaces of the borders being lightly watered also, to destroy any spores that may have fallen there. Singularly enough, not a leaf or flower was harmed, the young tender tips were also quite uninjured, whilst adventitious roots on some of the rods were quite blackened. Not a trace of living mildew was to be found the next day, but brown spots on the leaves showing where it had been were plentiful enough; these leaves were removed, and I have not seen a trace of fungus since. One subsequent application, especially directed at some Vines of White Tokay, was given as near boiling-point as was possible to use it, these Vines having been condemned on account of insipidity of flavour of the Grapes; these also show no signs of harm or check in growth. Another application was made to catch any spores that might be lurking about a few days after the first, in this case also the Vines came through the ordeal unscathed. Not only mildew, but a few examples of mealy-bug which had escaped the winter dressing were also killed. If hot water kills mealy-bug in this way, why should it not be effectual in killing Phylloxera, in one or all of the stages in which it is accessible? It appears to be worthy of experiment, either with hot water or with steam. The Vines experimented upon here for mildew were Muscats, Madresfield Court, White Tokay, and Lady Downes Seedling; in every case the Vines are growing freely, and the berries unharmed. *G. B. Mallett.*

CORTADERIA LAMBLEYI FOLIIS VARIEGATIS.

In regard to this handsome Grass, Mr. W. E. Gumbleton, to whom we are indebted for a photograph of the plant (fig. 121), writes as follows:—"I received this most distinct and beautiful variety of Pampas Grass many years ago from a nurseryman under the above name, for which I never heard any definite authority, and do not think I have ever since seen it offered by anyone else. It is perfectly hardy here (Queenstown), and of comparatively dwarf stature, and also of rather slow growth and tardy development, as though I have had it many years, it never showed its full beauty till last year, when it produced about twenty spikes, averaging 5 feet in height, and of a most distinct appearance; unlike any other variety known to me, its foliage is also prettily variegated with white."

VARIORUM.

Ramie Cultivation in Korea.—The Ramie stalk indicates its maturity for good fibre by turning yellow, and the leaves curl inwards at the end. In curing, the bark is loosened with the finger-nail, and is then stripped off with the aid of a bamboo-knife. This is done as soon as the stock is cut. As the decortication must be delayed, the stems are placed in water to prevent drying. This stripping is chiefly done by the women. The stripped bark is dried in the shade for several days, and is then made up into more or less compact bundles for packing upon pony back. The plant is propagated by transplanting the small rootlets that spring from the main root. This is done soon after the breaking-up of winter. Plants may be raised from seed, but the above method is preferred, and almost universally followed in Korea. The cultivation consists in digging about the plant just enough to keep it free from weeds; deep cultivation is not deemed necessary. There are three cuttings annually, in June, August, and again in September. Great care has to be exercised in making these cuttings, so as not to injure the young shoots that have sprung up, and upon which the next crop depends. Moist, rich loam is the most suitable soil for its cultivation. Stable-manure is used as a fertiliser. Warm temperature suits the plant. The United States Consul-General at Seoul says that there are two kinds of the Ramie plant grown in Korea, but he is unable to state whether they are distinct plants, or simply varieties of the same. "Moshi" is the name given to the carefully-cultivated one, and the fibres of this plant produce the silky threads made up into the highly-prized grass-cloth. The other plant, called "Sam," seems capable of growing almost everywhere. It is found in all gardens as a weed, and it will grow on rough hillsides and by water-courses. Neither barrenness of soil nor drought seems to kill it, though, of course, it is susceptible to care and attention. It is used for making the coarse fabric worn by the poorer classes in summer, and for the very extensive mourning costumes of all classes—a veritable "sackcloth." Moshi is used for the outer gowns of both sexes. No man or woman of any means in Korea is without one or more garments made from Moshi, which ranks next to, and is almost as pretty as silk. The same is, however, just as popular among the poor, and is indispensable for the three years' mourning periods that form such an important part of every Korean's life. Moschi once started, becomes a permanent crop, easy to raise and care for, and of much value. There are no Korean statistics as to the production of the fibre; but as there are supposed to be 12,000,000 inhabitants in Korea, it will be seen, from what has been said of the uses to which the Ramie fabric is put, that the production must be considerable. There is no export of either fibre or fabric. During the year 1897, an Austrian expert in Ramie visited Korea, with a secret process for the rapid handling of decorticated fibre, which he claimed to be able to turn into the perfected silk-like article in two hours. The Koreans were much interested in his proposition to establish a company in Corea, but declined to pay the large cash advance required for the use of the secret process. It is stated that the culture of Ramie could be increased in Korea indefinitely. "*Indian Gardening*," *April* 22, 1899.

NARCISSUS TRIANDRUS VAR. CONCOLOR.

In my notes which recently appeared in the *Gardeners' Chronicle* concerning hybrids of Narcissus, I suggested the probability of the varieties of N. triandrus, which have long been known as var. concolor and var. pulchellus, being wild hybrids of N. triandrus, and some form of N. juncifolius. In reply to inquiries I made, the Baron de Soutellinho of Oporto, better known to Daffodil collectors as Mr. Alfred Tait, has sent me some interesting information, from which I send extracts:—"As regards triandrus concolor I am rather puzzled; no juncifolius occurs near it (on the Sierra d'Estrella). The only Narcissus I can find in its vicinity is a Corbularia, but all the hybrids I have found of triandrus and Corbularia are more in the form of Corbularia, and are barren, whereas concolor seeds freely; so I can only consider it as a yellow variety of triandrus. The pulchellus, descendants of three bulbs which you sent me, never produce seed, but multiply by offsets, and at such a rate that, since 1887, when you sent me the original bulbs, I have raised several hundreds. This year I collected about 100 bulbs of concolor from a new locality—the banks of the River Antuâ (pronounced Antooang), near Estarreja, about 25 miles south of Oporto. It is strange that concolor varies so much—sometimes very like pulchellus, and sometimes nearly as pale as triandrus. The soil for concolor is decomposed argillaceous schist, with well rotted heather. N. concolor never grows on a granite formation, whereas triandrus grows only on such a soil."

In the same letter the Baron confirms my experience concerning the sterility of the hybrids known as N. Johnstoni, which he has never known to ripen a seed. *C. Wolley-Dod, Edge Hall, Malpas.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Cymbidium eburneum, and others.—The flowering season being now practically past, it will be necessary to attend to the requirements of these plants. The first named species produces few roots, and is very impatient of being disturbed. If a plant be doing well, remove therefore, merely some of the surface-soil and substitute fresh. Specimens which may be in an unhealthy condition, or in need of a larger receptacle, should be turned out and repotted into clean pots. The whole of the drainage material need not be placed at the bottom of the pot, but after putting some portion of it there add a little compost, and work in some crocks with this; and continue to mix these ingredients until near the surface, which may be finished off in the ordinary way. The compost may consist of good turfy loam and peat in equal parts, and a small portion of chopped sphagnum-moss. C. eburneum thrives in a warm part of the Masdevallia-house, and where atmospheric moisture is abundant. In regard to repotted plants, water at the root must be given with great care. Established plants may be benefited by an occasional application of weak farmyard manure-water. C. Mastersii does not like such heavy soil, and a larger proportion of sphagnum-moss will be necessary. The hybrids from C. eburneum and C. Lowianum and C. giganteum, providing the growths have not made too much headway, may be treated similarly to C. eburneum, but they require rather more root-room. A lighter position likewise should be found for them.

Eulophiella Elisabethæ, so far as my experience goes, thrives best at the warmest end of the Phalænopsis-house, where, during the summer months, the heat is great, and moisture abundant. The plants are now producing long, creeping rhizomes, from the ends of which the growths will develop. Before roots are emerged from these rhizomes the plants may be top-dressed or repotted. Their rambling habit necessitates the use of rather large receptacles, but sometimes the rhizomes may be induced to remain inside the boundary by carefully pegging them down on the soil. Provide pans with a large quantity of drainage material, and this should be surfaced with about an inch or so of compost only, which may consist of fibrous loam and peat in equal parts, and a similar amount of sphagnum-moss, adding a good proportion of finely-broken crocks as the work proceeds. Atmospheric moisture being plentiful, little water at the root is necessary until the plants are in very active growth, when the soil must not be permitted to remain dry even for a day. The leaves may be sprayed several times a day during bright weather, and occasionally they should be sponged.

Phaius grandifolius and others.—This useful winter-flowering plant, also P. Wallichi, and the various named varieties, should be grown in a warm intermediate temperature, shaded from direct sunshine, and if possible be stood on some moisture-holding material. Being strong and vigorous-rooting plants, they require ample root space, and a fairly strong compost, viz., equal parts of peat and loam, which should not be broken finely. After placing a few large crocks at the bottom of the pots, a fair proportion should be mixed with the soil. The roots are very brittle, and usually rot where bruised or broken. For a considerable period of time after repotting, only afford sufficient water to prevent the compost becoming dust-dry. Plants not disturbed will require a moderate supply of water, and occasionally weak manure-water. Green-fly and mealy-bug attack the young leaves, which must be carefully sponged should bugs appear. The aphis may be destroyed by fumigating the plants frequently.

Hybrid Phaius, such as P. × Cooksoni, P. × Normani, P. × Owenianus, P. × Marthiæ, &c., require a higher temperature than those of the P. grandifolius section, but otherwise the treatment given them should be very similar. The soil, however, needs to be mounded from the rims of the pots.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Cucumbers.—If no second sowing be made, and the early-raised plants must be kept in vigour throughout the season, frequent attention should be given both to the roots and the plants themselves. There is nothing that so well sustains growth as new, or at any rate, a fresh soil. A layer of turfy loam not too finely broken, put on as often as the roots come through the surface of the bed, will maintain healthy and fruitful growth, providing other conditions are favourable. Abundance of water will be needed on hot sunny days, with a syringing of the leaves not less than twice a day, and keeping all bare surfaces damp. With these conditions maintained, red-spider and aphides will not give much trouble. A regular supply of Cucumbers, even with vigorous plants, cannot be maintained without repeatedly stopping the lateral shoots, which should be carried out, at the least, once each week, when exhausted and damaged leaves or weak shoots may also be removed.

Frame Cucumbers.—Frames and brick pits now being cleared of their temporary occupants should be got in readiness for planting with Cucumber plants. It is not necessary to provide dung-beds specially for summer frame Cucumbers, if these have been provided for the other plants, as there will be sufficient warmth remaining in the materials to start and carry on the growth of Cucumber plants without any additions. By utilising solar-heat by closing the lights early in the afternoon, affording no shade, and by modifying the watering and syringing in accordance with the state of the weather, Cucumbers will grow and fruit well during the summer. The same rules apply in all particulars to frame-grown plants as to those in houses. Always use water warmed in the sun or by mixing it with hot water for syringing the leaves or moistening the soil. The Cucumber roots readily from cuttings placed in the Cucumber-bed without bell-glasses over them, and it needs only the tops to be taken off healthy plants and dibbled into the soil for them to become rooted in a few days, if the bine on the roof affords a heavy shade, and water be afforded copiously. Plants raised from cuttings fruit sooner than seedlings, and the cuttings when rooted may be lifted with a ball of roots and soil attached, and planted at once in a house or frame. All the same, seedlings are generally preferred, because they are more vigourous, endure longer in bearing, and carry more fruits. The fruits of frame-grown plants are apt to be discoloured when allowed to lie on the soil of the bed, and are then not nearly so presentable as are fruits which depend from the roof-trellis of a house. Cucumber glasses or a layer of small Pea-sticks spread over the bed, will obviate this. Do not allow the fruits to remain on the plants till they become of a large size, or permit ill-shapen fruits to remain.

THE KITCHEN GARDEN.

By H. Markham, Gardener at Wrotham Park, Barnet.

Thinning Young Vegetables.—Onions, Carrots, Parsnips, &c., will need immediate attention in respect to thinning, weeding, and hoeing. Onions should not be severely thinned except they be required for exhibition, bulbs of medium size being the more useful and better keepers. Draw the young plants with care so as not to disturb those left to mature. Should the plants have come up somewhat irregular in the rows, some of those pulled out should be dibbled in the vacant spaces. Onions may be transplanted very successfully in showery weather. When the thinning has been completed and an attack from maggot is feared, afford the whole of the beds a dressing with fresh soot. Carrots and Parsnips require to be thinned twice, first when the plants are not more than 1 inch high, when all clusters should be reduced; and later, when the young plants should be given individually a space of 3 to 6 inches, or even 8 inches in the case of Parsnips. Do not omit to sow at intervals small beds of Carrots of the Short-horn type. Remove the largest roots of Carrots or Turnips growing in frames, and if the frames are required for another purpose, the whole of the crop may be lifted, and those roots of a useful size laid in thickly on a north border, in which position they will keep for some time longer.

Leeks.—Lift without delay any Leeks still unused, and bury the stems to a good depth to preserve them. Prepare trenches for the coming maincrop, and if large Leeks are required, make the trenches similar to those intended for Celery, with the exception that more and richer manure should be dug into the bottoms of the trenches. For ordinary purposes, a good strip of land, deeply dug and well manured, will answer well. The drills should be drawn out rather deeply at 14 inches apart. Put the plants 8 inches apart in the rows. If the land has been heavily cropped, afford it a good quantity of manure, and when the drills have been drawn, soak them with liquid-manure, &c., delaying the planting until the following day.

Lettuce.—Sow at intervals in rows where the plants are intended to heart some of the most approved Cos varieties, but do not sow the seed thickly, nor fail to thin out early. It is a good practice to leave every alternate drill to be filled up with young plants as each row is thinned; those transplanted making a good succession.

Jerusalem Artichokes should be earthed-up before the tops become too high for this work to be done conveniently.

The Garden Walks.—Keep the walks free from weeds, and let them be well rolled. Box-edgings may now be clipped and trimmed.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Episcia (*Cyrtodeira*) *metallica.*—This very pretty and free-flowering Gesneraceous plant may be readily propagated by means of the freely-produced side-shoots or runners. Take these off with an inch or so of stem when they have made three or four leaves, and insert them in small pots filled with sandy-soil, or dibble them into the cocoa-fibre of the propagating-frame. Grow them on in a brisk heat, and eventually pot each into 5-inch or 6-inch pots. A suitable soil would consist of two parts loam, one part leaf-soil or peat, and a liberal addition of silver-sand. The dwarf habit and ornamental foliage of this plant render it very useful for furnishing the edges of the stages in the stove. The brilliant scarlet flowers only last a few days, but a succession of them is produced for a considerable time.

Chrysanthemums.—In some cases plants in 6-inch pots have made so many roots that they need to be transferred to their flowering-pots at once. The final potting of later plants should be completed during the first week in June, except that of a few backward plants. Pots 9 inches in diameter are sufficiently large, and the stronger-growing varieties should be given the larger size. Thorough drainage is essential, and the compost may consist of three parts good turfy loam, half a part each of flaky leaf-soil, stable-manure, and well burnt garden refuse, together with sufficient coarse sand to keep the whole porous. To each wheelbarrow-load of this compost a 4-inch potful of bone-meal may be added. If the loam be stiff, the compost should only be made moderately firm, but if light the plants can scarcely be potted too firmly. The plants when potted may be stood together for a few days in a sheltered position, and if they are syringed two or three times a day during fine weather, it will assist them to overcome the check caused by the disturbance of the roots. Secure the stems to stakes, and when established, remove them to their summer quarters.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

The Destruction of Insects.—During spells of cold weather and easterly winds, greenfly increases on Peach and Nectarine trees very rapidly, and curled leaves and shoots are the result. A thorough syringing with an infusion of Quassia chips should be given the trees each week for some time. Apply the liquid at a temperature of about 90°. Forcible applications of cold water at intervals, when the weather is warm, will also assist in keeping the trees clean. The cold winds of the past few weeks have also apparently brought on an attack of blister in Peach and Nectarine trees. All such leaves should be removed and burned, and those shoots badly affected pinched back. Should mildew appear on the trees, syringe with Gishurst Compound, at a strength of 2 oz. to the gallon of rain-water, or failing this, a mixture of water, soft soap and sulphur should be applied. The caterpillars which infest the Cherry, Pear and Plum, and wall trees generally should be looked for two or three times weekly. When disbudding or pinching back the shoots of these trees, infested bits should not be thrown on the borders, but into some receptacle until they can be burned.

Removing surplus suckers from Raspberries.—Raspberry plants are now growing fast, and the young canes should be thinned; and unless required for future transplanting they may be thinned down to three or four growths to each stool, removing the weakest ones by pulling them out. When, however, stock is required for forming new plantations, the suckers more distant from the stool should be allowed to remain for this purpose. Autumn fruiting varieties should be afforded sufficient room to allow of the canes being tied thinly to the wires. Stir the surface soil, and if the ground be of a light nature, apply a mulch of half-rotten manure, following this by a thorough soaking with weak liquid-manure.

The earliest Strawberry-bed is usually placed on a south border, and it should always consist of young plants, for these produce ripe fruits sooner than two-year-old plants. In such a plantation the most forward blossoms will now be well set, and a few of the later ones may be thinned out. This will tend to increase the size of the fruits and aid development. Beds treated as described have usually produced ripe fruits early in June, sometimes even in May, but according to present appearances, ripening will be at least a fortnight late this year.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Bedding-Out.—The hardier kinds of bedding-plants, viz., Calceolarias, Gazanias, Verbenas, &c., may now be safely planted. The Pelargoniums in its several sections and varieties, Lobelias, Erinus, and Petunias will be better if left unplanted till a week later. Antennaria and Cerastium tomentosum form neat edgings to some kinds of beds, and if small pieces are planted in lines three inches apart, they soon take root and grow. Echeveria secunda glauca is another bold edging plant, requiring to be tilted when planted, so that the water does not remain in the heart of the plant. Continue to gradually harden off the stock of tender plants, such as Heliotrope, Fuchsia, Coleus, Iresine, and the various subtropical plants.

Window-boxes.—These should now be filled with soil; using for preference rough pieces of turf for drainage. See that the boxes are secured from wind, and made perfectly level. The deeper the boxes, so much the better for the plants. Pelargonium peltatum (Ivy-leaved), in all its varieties is an excellent plant for filling these, especially the pink variety, Madame Crousse. This, if planted near the edge of the box droops gracefully over the sides, and continues to flower the whole of the summer. The yellow and white-flowered Marguerites (Chrysanthemum frutescens) also do well in boxes. In windows fully exposed to the sun the dwarf Nasturtiums are excellent, the seeds being sown now, at 1 inch deep in the soil. But window-boxes on the north side of a house or which are much shaded should have Ferns and foliage, not flowering plants, placed in them.

Climbers.—Thin out the growths so as to avert a crowded state of the branches and shoots, securing loosely sufficient of them to cover the space. A few shoots well matured always give the finest results in respect of blossoms. The Clematis require almost daily attention, as growth is very rapid, and the plants, if neglected, soon become tangled masses, impossible to be dealt with. Climbing Roses that have been tied in closely to resist the wind, should now be fastened more loosely, in order to allow the young growth to spread, especially is this necessary with Turner's Crimson Rambler. Magnolia grandiflora should have the long bare branches cut out, and younger shoots tied in their place, leaving sufficient space for the coming season's growth. It is not a good plan to tie one shoot upon another, as is often done, the older heavy leaves shading the undergrowth and causing it to die back; the shoots, too, being so far from the wall do not ripen properly, and it is one of the causes of Magnolias not flowering well.

Bulbs.—Most of the Narcissus and other bulbs will have passed out of flower, and the present is a suitable time for marking such as need to be taken up when the foliage is ripe, and to be divided and replanted in a fresh place. This may be necessary in from three to five years. Do not cut off any green leaves, as to do so impoverishes the bulbs, and is a cause of failure.

Pæonies.—A copious application of manure-water to the tree and herbaceous kinds will strengthen the growths and increase the size of the blossoms. Let the stems be supported, or the rain will break down the flower-heads, or cause them to bend to the earth; moreover, a flower fully exposing its petals to the sun comes of a finer colour than one that hides them, as does a pendent bloom.

THE APIARY.

By Expert.

Swarming.—Where bees are doing well and increasing rapidly, their over-zealous owners frequently become impatient in their anxiety for swarms, artificial or natural. To such we say, do as much as you like to help your bees forward, but do nothing which will throw them back, and unless the weather becomes very settled and warm, do not be in a hurry with artificial swarming. In any case, the end of the month will be soon enough this year to think of breaking in upon the prosperity of stocks by dividing. We have long maintained that the very best time for either a natural or an artificial swarm is the beginning of June, because it gives ten days or so in which, by the aid of foundation and feeding, the hive may be well furnished with combs, and a good portion of these combs occupied with eggs and brood before the Clover is in full bloom. Then is the time to see a swarm work in earnest, and to note how rapidly it will shoot ahead of one which has been hived earlier, and has lost heart through lack of food.

Artificial Swarms.—Under certain circumstances, artificial swarming is simple enough. Given fine warm weather, and two strong stocks of bees, it only requires that the queen be lifted out of hive No. 1 with the frame of comb on which she happens to be found, and placed in the centre of a new hive, the frames of which should be fitted with foundation; or, preferably, frames of comb and foundation alternately. The new hive is then set on the stand previously occupied by No. 1, and No. 2 is moved some distance away to a new stand, while No. 1 takes its place on No. 2 stand. Thus the new hive gets the queen and all the flying bees of No. 1 (this, of course, constitutes the swarm), while the adult bees of No. 2 take possession of the combs and brood of the former, raising for themselves a new queen from the brood left in the hive. If this operation is performed in the middle of a fine day it will very rarely fail. This is the simplest and safest method of forming an artificial swarm. Should natural swarms have come off before the issue of our next number, they must be fed daily during the bad weather. A few wet or cold days immediately after hiving greatly check the progress of new swarms, and it is of the utmost importance to keep them going by feeding as long as adverse weather lasts.

Special Work.—All that can be done must be done in nursing any stocks that are weak in numbers, but making rapid progress. Keep the slow feeder constantly going if food is scarce, or uncap sealed stores once or twice a week if there is plenty on hand. Suitable spring food may be prepared by pouring hot water (3 pints) on 5 pounds of refined cane-sugar, stirring till the sugar is dissolved, and giving the food whilst it is just warm. Keep entrances narrowed till bees become busy, and they want room for coming and going. See that quilts fit closely down, and that no escapes at the top of the hives. When the first overhaul of hives is made, let it be really thorough, and make a note of their condition; this note to be tacked inside the roof, or placed where it will be easy to refer to when needed. On this state what progress is being made in brood-rearing, and what feeding, &c., is required, and do not disturb the brood-nest again, so long as progress is maintained, until the weather gets quite warm and genial. Except in early counties, it will be time enough to think of surplus-room when our next number is issued. Some stocks which have wintered on a few frames will require additional combs early in the month; no disturbance of the brood, however, is needed in giving these. When there are bees on all the combs, add a frame on each side once a week, till the full complement is reached. Should the weather be favourable, and a colony is strong, and making very rapid progress, usually give the full number of combs at one operation, to save further trouble.

"THE FLORA OF KENT."—We are pleased to be able to announce the publication of a volume devoted to this subject by F. J. Hanbury, Esq., and the Rev. E. S. Marshall. The book has been long expected; and as it refers to one of our most interesting counties, and is the work of two of our most distinguished British botanists, it may be anticipated that it will receive a cordial reception at the hands of botanists. We shall have occasion to refer to it at greater length on another occasion. In the meanwhile, we may state that the book is to be had of Mr. F. J. Hanbury, 37, Lombard Street, London, E.C.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, May 31 { Annual Exhibition of the Royal Horticultural Society, in the Gardens of the Inner Temple, London (3 days).
THURSDAY, June 1—Linnean Society Meet.

SALES.

TUESDAY, May 30 { Special Sale of Orchids in Flower and Bud, at Protheroe & Morris' Rooms.
FRIDAY, June 2 { Imported and Established Orchids at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period May 14 to May 20, 1899. Height above sea-level 24 feet.

1899.	Direction of Wind.	Temperature of the Air.				Rainfall.	Temperature of the Soil at 9 a.m.			Lowest Temperature on Grass.
May 14 to May 20.		At 9 a.m.		Day.	Night.					
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.		At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 14	S.S.W.	56·8	52·7	60·7	48·5	0·44	55·9	52·6	49·8	42·6
Mon. 15	W.S.W	48·9	47·9	60·4	47·5	0·02	54·5	52·8	50·1	46·5
Tues. 16	W.S.W.	54·7	47·8	59·5	47·3	0·34	54·5	52·9	50·3	41·9
Wed. 17	W.S.W.	52·8	47·2	59·9	48·6	...	54·4	52·9	50·3	43·9
Thu. 18	S.S.W.	58·9	54·0	64·0	47·9	...	54·9	53·1	50·5	39·2
Fri. 19	S.S.W.	55·4	51·5	62·2	46·9	0·06	56·3	53·5	50·8	39·9
Sat. 20	W.S.W.	56·9	54·8	62·7	53·5	0·18	56·5	53·9	50·8	47·9
Means...	...	54·9	50·8	61·3	48·6	Tot. 1·04	55·3	58·1	50·4	43·1

Remarks.—The weather during the week has been very unsettled and dull, with a thunderstorm on the 16th. Rain fell on five days, the heaviest quantity being on the 14th, which was the greatest fall for any one day this year.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—58·1°.

Actual Temperatures:—

London.—*May* 24 (12 p.m.): Max. 63°; Min. 52°.

Provinces.—*May* 24 (6 p.m.): Max. 52°, South Coast; Min. 42°, Sumburgh Head.

Weather showery.

Seaside Planting.

Seaside planting offers peculiar difficulties, and the planter has often to make use of subjects which he knows will answer his purpose, rather than others of a more ornamental character.

The beach-gardens at Folkestone offer an illustration. They are only just beyond high-water mark. In stormy weather they are drenched with spray, and exposed to the full fury of the south-westerly gales. Moreover, they are placed upon an under-cliff of lower greensand rock, alternating with bands of blue-clay. Landslips consequently are of frequent occurrence. To obviate these as far as possible, great use is made of the so-called Tea-tree, Lycium barbarum. It is deciduous, and forms a tangled thicket of shoots, which in winter-time is not attractive to the eye, but which serves as a wind break. Its chief value, however, consists in the freedom with which it produces underground suckers and runners. These are so numerous and so intricate that they hold up the loose, treacherous bank in a manner that no other plant known to us could surpass. Just now, these suckers are clothed with foliage of a rich, clear green, which may perhaps have suggested the popular name. Behind the Tea-tree hedge, or mixed with it, the common Elder is planted. It is not very ornamental, being distorted and blown out of shape, but it forms a good protection; the young shoots get killed by the salt-blast, but they remain as a thicket of brush-wood, which serves to temper the wind, whilst in spring a forest of new shoots is formed to replace the older ones, and in their turn to share the same fate. Indeed, during the interval that has elapsed between the writing of this note and its appearance in type, a severe gale has played havoc with the newly-formed shoots on the exposed side of the shrubs. Some of the Willows are used for like purposes as the Elder and the Lycium. The Tamarisk, not yet in leaf, is very elegant in its finely-divided branching, and in the ruddy colour of its bark. It was introduced to the Kentish coast by the late Mr. Masters, of Canterbury, and is one of the very best of shrubs for seaside planting at the verge of the sea. Gorse, with its brilliant flowers, is sparingly employed, but might be much more freely used. Maples, Sycamores, and Elms form thickets in which the nightingale and other birds find shelter.

Of evergreen trees, the Evergreen Oak is one of the hardiest; its leaves, indeed, get browned on the exposed side of the tree, but they are soon replaced by young foliage in spring. Of Conifers, Cupressus macrocarpa does not do so well as in the Isle of Wight and other localities. The Pinaster soon gets shabby, but the Black Austrian Pine forms admirable shelter plantations, just now very striking with their young buds, projecting upwards like so many candelabra. The only objection that can be raised is as to the density of the shade, which prevents any undergrowth. The vegetation of the Folkestone sandstone cliffs is naturally of the most interesting character to the botanist, but it is destroyed wherever these Pines grow; hence, while grateful for occasional plantations of these trees, we hope the authorities will extend them with discretion, and take care to leave wide areas in their natural condition.

Reverting to shrubs planted by the gardener, we may mention the Euonymus as specially suitable for seaside-work. Its rich green, or in many cases brilliant golden foliage, render it very attractive. Escallonia macrantha is also a shrub which may be highly commended, as it is rarely hurt by frost, even on the Kentish coast, and its glossy foliage and pink flowers are both attractive. The broad-leaved Privet forms excellent hedges. Lavatera arborea, the Tree Mallow, is wild, or at any rate "naturalised," hereabouts, and its appearance is sufficiently striking to attract attention. Though it is of little use for shelter, it will grow on the very edge of the sea, and is now common all along the coast as far west as Hythe. It is unnecessary to go into further detail with regard to shrubs and trees, for within the shelter of the subjects we have mentioned almost all our hardy shrubs will grow, and flowers attain a brilliancy unknown save by the sea.

We should like to add an emphatic warning to our Folkestone friends, not to encroach any more on the cliff beneath the Leas for additional paths or any other purpose whatever. Its great charm is in its wildness, and in the shelter it affords to wild birds and plants. There are certain thickets of deciduous trees which now form a paradise for birds, and to disturb them would be sacrilege. It would be far better to do away with some of the paths than to create new ones: with a little contrivance, the public convenience could be equally well satisfied by amalgamating some of the present paths, and by doing away with others. On this bank grows the wild Sea Pink (Armeria), Iris fœtidissima, Hippophae rhamnoides, a wealth of Trefoils, and Medicagos, dear to the botanist, and a host of other interesting plants. Just now portions of the cliff present a very striking appearance, from the noble masses of Smyrnium Olusatrum in full bloom. Lepidium Draba forms sheets of white flowers, this is a plant introduced to Folkestone within our own recollection, and it is now competing for supremacy vigorously with Brassica nigra, Smyrnium, Lucerne, and other plants. Indeed, the study of this bank, whether from month to month during the season, or from year to year over a series of years, is most interesting and instructive. As a good many garden plants, like the Scabious, the Marigolds, and the Borage, find their way here from time to time, the young botanist must exercise his discretion before pronouncing upon the "wildness" of the plants he finds. Whilst there are certain bare places on the cliff which might advantageously be planted with Gorse or Sea Buckthorn, Clematis, or other native plant, we most earnestly plead for the protection, and, if possible, extension of the wilder portions of the Folkestone undercliff.

As for the formal gardens on the Leas above the sea, they are too well kept. The authorities seem to want reminding that shrubs and trees, left to themselves, or slightly regulated, have each their own beauty of form, and do not require to be shorn like the grass lawns or hedges. It may be necessary to restrict the too rampant growth of Euonymus and Evergreen Oaks, and other trees and shrubs, but it is not necessary to cut them all without discrimination into the shape of dumplings and dish-covers.

Dianthera illustris. — An Acanthaceous plant (fig. 122) was exhibited under this name by Messrs. F. Sander & Co., St. Albans, at a meeting of the Royal Horticultural Society, on April 18. The foliage is entire, acuminate, opposite, and of a dark green colour. The showy character of the plant is chiefly due to the red or crimson bracts of the inflorescence, which is produced at the extremity of the growth, as in Jacobinia. The tubular corolla is light purple. The general appearance of the plant is also suggestive of a Jacobinia.

Linnean Society.—On the occasion of the evening meeting to be held on Thursday, June 1, 1899, at 8 p.m., the following papers will be read:—I. "On the High-level Plants of the Andes, as illustrated by the Collections of Sir W. Martin Conway, Mr. Edward Whymper, and Others," by Mr. W. Botting Hemsley, F.R.S., &c. II. "On some Australasian Collembola," by Sir John Lubbock, Bart., F.R.S., &c.

—— The anniversary meeting of the Society was held on May 24, when Dr. Günther read an address on the "Collection of Fishes accumulated by Linnæus," and now in the custody of the Society. A special feature of the meeting was the

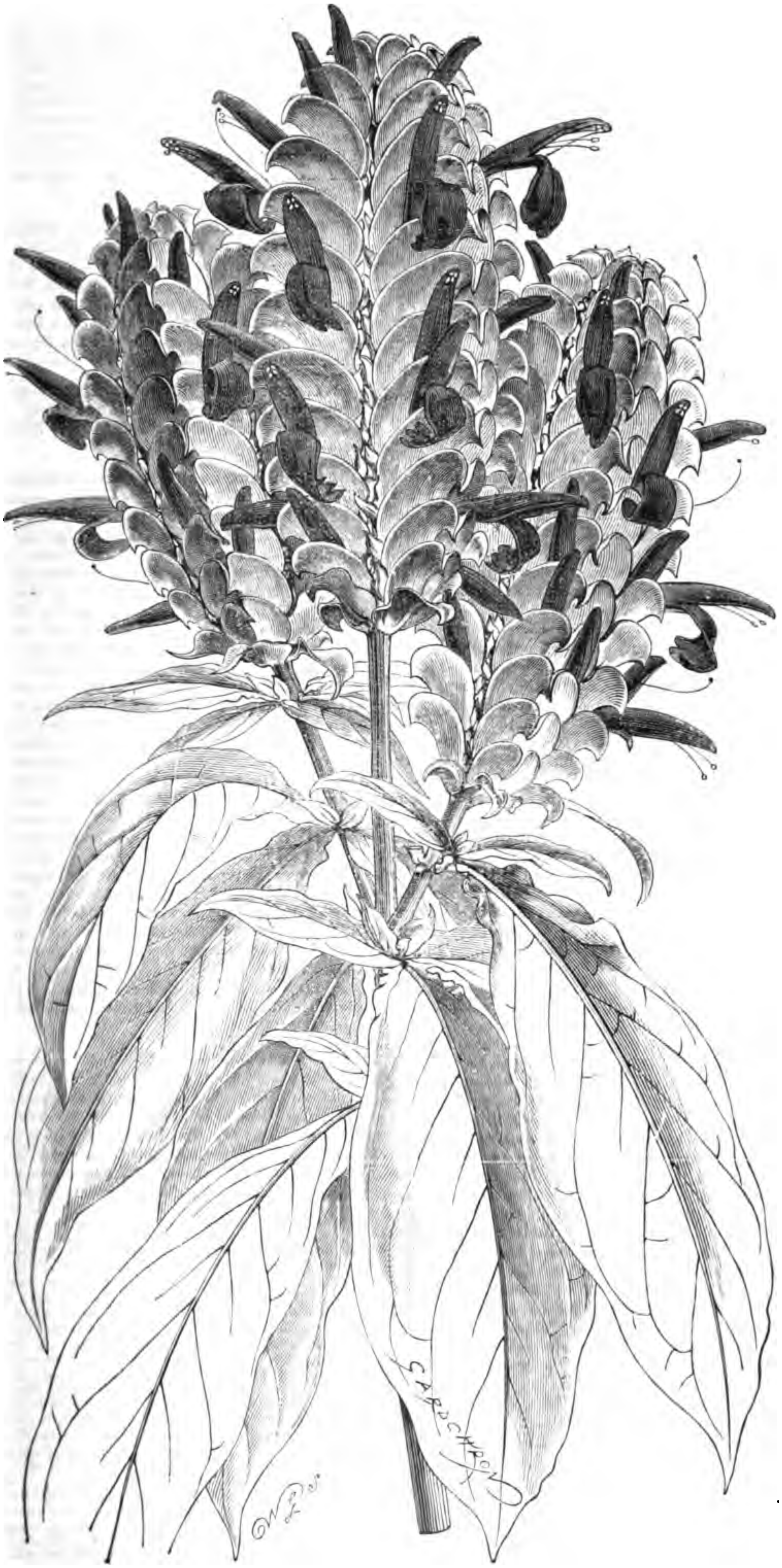

Fig. 122.—DIANTHERA ILLUSTRIS.
Colour of the flowers light purple, and that of the bracts crimson. (See p. 338.)

presentation to Mr. J. G. Baker of the Linnean Medal, an honour which is awarded each year to a distinguished naturalist, a botanist, or a zoologist, being chosen in alternate years. Dr. Günther, in presenting the medal, alluded to the very numerous and important contributions to botanical science made by Mr. Baker during his career at Kew, as well as previously—contributions, the value of which is highly appreciated abroad as well as at home. He trusted that in the leisure Mr. Baker has now attained, further work may still be expected from him. Mr. Baker, in acknowledging the honour conferred on him, alluded to the encouragement afforded by the Society to naturalists, who, but for the Society's aid, could not publish the results of their labours without great expense. There was a general feeling that the medal was most worthily awarded, and Mr. Baker, who was accompanied by Mrs. Baker and their son and daughter, received the warmest congratulations on the occasion, congratulations in which the readers of the *Gardeners' Chronicle* who have derived such advantages from his communications to our pages will cordially join.

Queen's Trees.—We have to add another Oak to the list of trees known to have been planted by Her Majesty, printed in our issue for June 19, 1897. On the occasion of the eightieth anniversary of her birthday, the Queen planted an Oak near one of the lawns at Windsor. *Floreat!*

The Temple Show of the Royal Horticultural Society is an event annually anticipated with the greatest enthusiasm by gardeners generally. Its success as an exhibition has been extraordinary on every occasion. In respect to the show that will be opened on Wednesday next, the following interesting particulars have been supplied us by the Society's secretary:—"For the twelfth year in succession the Royal Horticultural Society will hold its great annual flower show in the Inner Temple Gardens (by the kind permission of the Treasurer and Benchers) on May 31, and June 1 and 2. Every year there is an increased desire on the part of cultivators to exhibit, and the officials of the Society have a very anxious task in their endeavour to do justice to those growers who regularly support the fortnightly shows of the Society held at the Drill Hall, and yet at the same time to encourage others to come forward. The space is absolutely limited, by order of the Temple authorities; no more or larger tents may be erected. Hence, every new exhibitor whose entry is accepted necessitates a curtailment of the space allotted to previous supporters. A catalogue of the show is given gratis to every visitor, and this will contain a notice of new and rare plants entered on or before May 23; it will also contain a programme of the music to be performed each day by the band of Her Majesty's Royal Horse Guards (Blues). The judges will meet at the secretary's tent at 10.30 a.m., on May 31, at which hour punctually the tents will be cleared of all exhibitors and their assistants. The Fruit, Floral, and Orchid Committees will assemble at the secretary's tent at 11 a.m., and the show will be opened at 12.30. All plants for Certificate must be entered on or before Friday, May 26. Address the Secretary, Royal Horticultural Society, 117, Victoria Street, S.W. They cannot be entered under any circumstances on the day of the show."

Gardeners' Royal Benevolent Institution.—A largely-attended meeting was held on May 16, at Reading, for the purpose of forming a local branch of the Institution. Mr. Arthur Sutton has taken a prominent part in the formation of this branch, which has also the warm sympathy of Mr. Martin Hope Sutton. Mr. Harry Veitch, Mr. O. Thomas, and a large number of gardeners from the neighbourhood took part in the proceedings. Mr. O. Thomas pointed out that out of some 25,000 gardeners there were only about 600 who subscribed to this Institution, founded for their special benefit, and hoped that the formation of this local branch would greatly add to the numbers of subscribing gardeners. Mr. Keyser was appointed president of the branch, Mr. A. W. Sutton was elected treasurer, Mr. H. G. Cox was appointed hon. secretary, and the following committee was elected:—Messrs. Neve, Ashby, Combes, Trollope, McHattie, Stanton, Pope, Galt, Kitt, Thatcher, Heath, Wise, Maxim, Lees, Fry, Exler, Pound, Smith, Tegg, and Bryden.

HORTICULTURAL CLUB.—The usual monthly dinner and conversazione took place on Tuesday at the rooms of the club, Hotel Windsor, there was a good attendance, both of members and their friends. The chair was occupied by the Rev. W. WILKS, in the unavoidable absence of Sir J. D. T. Llewelyn, Bart.; there were present beside, Sir John Furley, Messrs. J. H. Tritton, C. E. Shea, R. Gofton Salmond, George Monro, Peter Kay, H. A. A. D'Ombrain, H. Somers Rivers, C. Mason, Philip Crowley, Dr. Maxwell T. Masters, and others. A very interesting paper was read by Mr. Gofton Salmond, on the "Preserving of Vegetables by Evaporation," and a number of specimens of vegetables so prepared were exhibited. An interesting discussion followed, in which most of those present took part, and the feeling among all was that the process would be invaluable for the army and navy, and for all expeditions where the obtaining of fresh vegetables would be a matter of difficulty.

THE LINDLEY LIBRARY. — Visitors to the Lindley Library in the Council-room of the Royal Horticultural Society will observe with pleasure that the books are now all enclosed within glass cases, which add materially to the appearance of the apartment, while they secure the books from some, at least, of the defilements of the London atmosphere. The cases have been provided by the munificence of the Council of the Royal Horticultural Society.

THE SURVEYORS' INSTITUTION.—The annual general meeting of the Institution, to receive the report of the council, and the announcement of the result of the election of officers for the ensuing year, will be held on Monday, May 29, 1899, at 3 o'clock, at the new building, 12, Great George Street, Westminster. The prizes awarded to successful candidates, in connection with the recent preliminary and professional examinations, will be presented by the PRESIDENT at the annual general meeting. The Institution is now removed to the new building, 12, Great George Street, Westminster, to which all communications should be addressed.

THE ACADEMY OF SCIENCES.—M. ED. PRILLIEUX has been elected a member of the Academy in the place of M. NAUDIN. M. PRILLIEUX is well known in this country for his researches in vegetable pathology.

FATAL ACCIDENTS FROM A FALLING ELM.—At Powis Park, Welshpool, the seat of Earl POWIS, during a strong southerly gale, a large Elm standing near the approach drive was overturned, and falling on a group of children, killed one of them on the spot, severely injured two others, all of one family, one other child belonging to another family being injured in the spine. Miraculous escapes occurred to others from the falling branches. The tree was apparently sound, although at the root it was decayed.

GARDENING FOR WOMEN. — At the Exeter High School for Girls recently, Miss SIEVEKING, hon. secretary of the Women's Branch of the Horticultural College, Swanley, Kent, gave a lecture on "Gardening as an Occupation for Women." She explained that the female side of the college was opened in consequence of a large number of applications received from women who desired to study the art or science of horticulture. There are very few of the operations connected with horticulture which were beyond the strength of an average woman, and it had also been proved that gardening was a suitable employment for women. Although they could not expect to obtain riches from this work, they could at any rate make a comfortable livelihood. The open-air life was healthy, and the girls improved under it to an extraordinary extent. There were always good positions available for the students after they left the college, and there were many who were at present employed as gardeners in various parts of the kingdom. Miss SIEVEKING, in an interesting way, explained the routine of the college, and the method of work adopted, and, in conclusion, expressed the opinion that any occupation which drew girls away from the bustle of large cities and gave them quiet and healthy employment, was to be commended. Mr. H. TOLSON asked what girls did best at the college, and Miss SIEVKING replied that those who had a good all-round education, because they were able to spend more time in the gardens.

THE ROYAL GARDENS, KEW, have appeared very charming during the Whitsuntide holidays, and, as usual, the number of visitors has been large. In the grounds some of the early-flowering shrubs are in full bloom, including the glorious Lilacs and hardy Azaleas; the pink and white-flowered Thorns being, as yet, not fully at their best. But the late-flowering bulbs upon the grass, the last of the Tulips to flower in the beds, including an admirable display of the Parrot varieties; also the great breadths of Blue Bells under the trees, and the plants in bloom in the alpine garden, are all features that offered much gratification to visitors who had eyes to see them. In the Water-Lily-house the beautiful hybrid and other Nymphæas bore plenty of flower-buds, but unexpanded. The Victoria Regia, in the house which this plant has made an extremely popular one to the public, has yet put forth only a few early leaves, but with the plant of the Double Cocoanut at the margin of the tank, it appeared to excite much interest. The Orchid-houses contained a fairly good display of bloom of Cattleyas, Lælias, many variations of the Slipper Orchid, Odontoglossums, and other species. The Orchid-houses since being rebuilt have a much better appearance. The Stove, Begonia-house, and the new Nepenthes-house, were all as interesting as usual, but visitors were at a loss to explain a smell prevalent in this part of the T range, which was due to one of the more modest-looking of the Amorphophallus. The Greenhouse (No. 4) presented a gay picture, and contained a wealth of flowers. Amongst the species of plants contributing to the general effect were Schizanthus pinnatus, Collinsia bicolor, Azaleas, hybrid Cinerarias, some of which were plunged or planted in the beds, and were charming decorative plants, measuring in instances 3 feet to 4 feet across; Achimenes, Celsia cretica, Nemesia strumosa, a small-flowered annual, very suitable for cultivation in pots, flowers of varying shades of yellow to deep orange colour; Petunias, Ixias, Begonias, Gloxinias, Fuchsias, Lonicera sempervirens minor, Hydrangea paniculata, Viburnum tomentosum plicatum, Boronias, Daphne Cneorum, Wistaria chinensis, and W. c. alba, a nice batch of herbaceous Calceolarias, Scutellaria Mociniana, Lilium candidum, &c. The disposition of these plants in batches in place of the "miscellaneous groups more frequently seen in gardens," is a pleasing one. The Temperate-house, which has awaited completion so long, but is now perfect, offered many interesting features, not the least being some profusely-flowered plants of the fragrant Rhododendrons.

TREASURE IN A LONDON GARDEN.—One of the gardeners employed in the Lincoln's Inn Fields found buried there, in October last, ninety-four rings, that were stolen from a jeweller's shop in May last year. Knowles, the gardener, took the rings to the police-court, and was on Tuesday last given the not too liberal reward of £1, which was awarded by the owner of the rings on the suggestion of the magistrate.

RHUBARB LEAVES AS A VEGETABLE.—In the *Information Gazette*, Oxford, it is said that Rhubarb leaves, "if deprived of their larger ribs and cooked like Spinach, make a most delicious dish, with no suggestion of the flavour of Rhubarb tart." Have any of our readers given them a trial. If it be possible to make these leaves into a "most delicious dish," we may see our way to the utilisation of another waste product.

TOMATO WINTER BEAUTY.—We understand that the entire stock of Mr. MORTIMER's new Tomato, which was exhibited at the Royal Horticultural Society's meetings at the Drill Hall on April 18 and May 2, and which received the Society's Award of Merit on the former date, will be distributed next season by Messrs. SUTTON & SONS, Reading.

WELBECK ABBEY STRUCK BY LIGHTNING.—It is reported that on Tuesday last the turret clock and other portions of Welbeck Abbey, Worksop, were damaged by lightning.

AGRICULTURE AND GARDENING IN ALASKA.—The projected agricultural experiment station in Alaska is, as we learn from the *Times*, May 15, an accomplished fact, its organisation having been completed under the auspices of the United States Department of Agriculture. The main station is at Sitka, which lies in the same latitude as the north of Scotland, but with a far more rigorous climate. Land near to Sitka is also to be cleared for the erection of log silos, wherein to silo the native grass, which is abundant and good, but not readily made into hay, on account of the frequent rain and excessive humidity. The new station will be supported at the expense of the United States Government, and not subject to the provisions of the well-known Hatch Act. It has been demonstrated that Oats and Barley will not only make excellent growth, but will ripen their grain in south-east Alaska. This point has not been ascertained as regards Wheat and Rye, but experiments on autumn-sown grain are in progress. Clovers and Flax grow vigorously; and among vegetables, Asparagus, Beetroot, Carrots, Kale, Cress, Lettuce, Onions, Parsnips, Peas, Potatos, Radishes, Salsafy, Rhubarb, and Windsor Beans, did well on old ground. Very few succeed on new ground, but they languish and die. It is raw, sour, water-logged, and contains much decayed wood, requiring aërating, and liming to make it suitable for most kinds of cultivated plants.

INFORMATION WANTED.—With reference to the caution to advertisers which we published a short time ago, warning them against a man who replied to their advertisements, and offered situations for a fee, or to supply goods, but required cash in advance, we shall be glad if any of our advertisers, who have been duped, will communicate with the PUBLISHER at once.

PUBLICATIONS RECEIVED.—*Eleventh Annual Report of Agricultural Experiment Station, University of Illinois, for the Year ending June 30, 1898.*—*Bulletin*, No. 54: Spraying Apple-trees, with special reference to Apple-scab Fungus.—*Meehans' Monthly* for May, 1899.—*Japanese Botanical Magazine* for March, 1899, No. 145, containing Notes on Eastern Asiatic Plants, Marine Algæ of Japan, Rare Japanese Plants, Morphology of the Pollen-cells, and the Spermatozoid of Ginkgo; Hybrid Orchids, the Penetration of Chalk and Bones by Fungus, &c.—*Annual Report on the Royal Botanic Gardens, Trinidad*, for 1898, by J. H. Hart, F.L.S.—*Annalen des K. K. Natur-historischen Hofmuseums, Vienna*, vol. xii., Nos. 3 and 4; vol. xiii., No. 1.—*Bulletin of the Botanical Department, Jamaica*, by Wm. Fawcett, B.Sc., F.L.S.—*American Journal of Science*, two extracted papers, viz., "Plants of the Crowfoot Family," by M. L. Fernald; and "Illustrated Flora of the Northern U.S.A. and Canada," by Nathaniel Lord Britton, Ph.D., Hon. Addison Brown.—*Descriptive Notes on Fibres*, prepared for the Greater Britain and Paris Exhibition from Plants, Indigenous and Exotic, Cultivated in the Botanical Gardens, Melbourne, by Wm. Robert Guilfoyle, Director.—*The Alkali Soils of the Yellowstone Valley* (U.S. Department of Agriculture), No. 14.—The *Orchid Review* for May, 1899, contains some interesting articles on "Feeding Orchids," "Freaks among Orchids," "On Hybridising Orchids," "Affording Water to Odontoglossums," &c.

NOTICES OF BOOKS.

EDIBLE AND POISONOUS FUNGI OF JAPAN.

A GIFT has recently been made to the British Museum (Natural History) by Mr. K. Minataka of two illustrated volumes descriptive of the larger fungi of Japan, by Mr. Sakamoto. Translations in English of many of the descriptions have been appended by Mr. K. Minataka, but the introduction is not translated. There are no scientific names, so that it is not easy to say for certain what species some of the drawings represent. The illustrations are in outline; these are both excellent and artistic. Unfortunately, the artist has given no sections, and the colour of the spores is not given. Reference is once made to the *Handbook* of Dr. M. C. Cooke. From a strictly botanical point of view, the volumes are therefore defective; but the illustrations are so highly natural, and so remarkably well done, that, taken with the descriptions, a close approximation to the true scientific names is often possible. In some instances the name can be given with certainty.

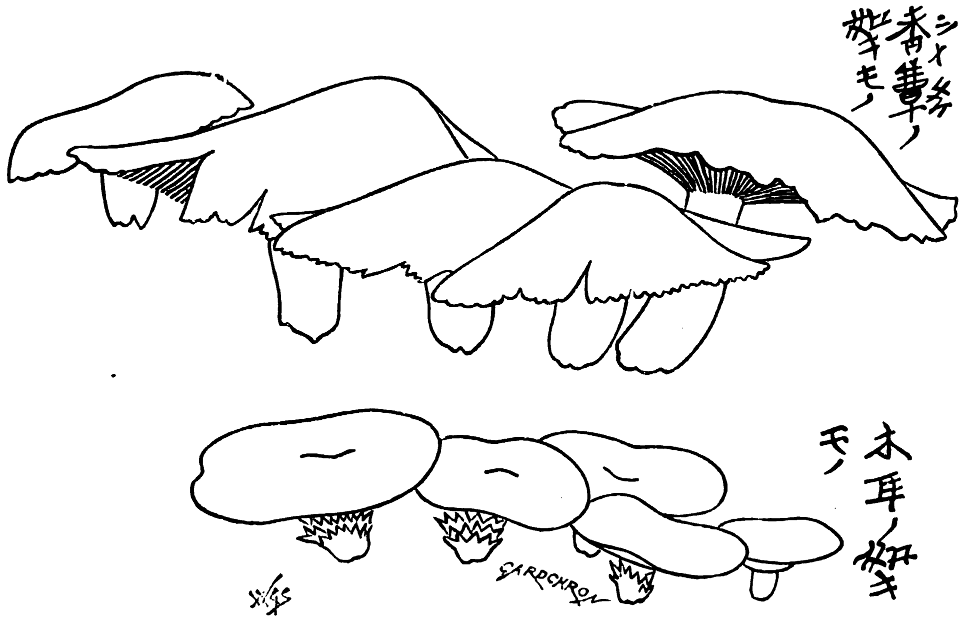

FIG. 123.—"MOONLIGHT MUSHROOMS," AS SKETCHED BY A JAPANESE ARTIST.

The volumes begin at the end with an introduction. Vol. I. commences with an illustration and description of what is called the "First Mushroom." This is a Lactarius, and is said to have the best scent of all Mushrooms, and with a taste both sweet and cooling. It is not poisonous, and grows in Pine plantations. The next is the "Red First Mushroom," another Lactarius; it is described as red, clean, and amiable, with the best taste. This is followed by what is called the "Dancing Mushroom;" the illustration greatly resembles our Lentinus cochleatus; both size and shape are said to be "various," but the usual shape is "like a man dancing;" this explanation is, however, qualified by a second, which says that when bears find it they dance, and that they are very fond of eating it. It is stated to have medical properties, and to have "good effect if eaten by a sufferer of piles." This is followed by the "Violet Dancing Mushroom," the popular Japanese name being the "Dancing Ape." The taste is said to be "light," but a blackish variety is considered the best for culinary purposes. Next there is a "Yellow Dancing Mushroom," with a "sweet and bitter" taste, an inferior species of poisonous Mushroom. A white Hygrophorus is next illustrated, and then a "Quercus Mushroom," which is inferior when dry, but when fresh better, and good as a "dainty for carouse." It is said also to be an antidote "for the poison of fish and concoction." A group of certain fungi is somewhat ambiguously said to be like a "sloping fence," then a subterranean species is represented — Rhizopogon rubescens; next a Hydnum, than a pallid, violet Clavaria. This, we are told, if eaten in quantities, "causes stomach-ache and purge." Next we have "Buddha's-hand Mushroom," and two pages of description and illustrations of what is called the Hukiyo-take, or "Moonlight Mushroom." The illustrations seem to represent our Agaricus fastibilis, a well-known poisonous species often confounded with the true Mushroom, and which sometimes appears on Mushroom-beds. If it is not A. fastibilis, it is a very close ally. We here reproduce a copy of one of the drawings of this species, partly to show the excellent draughtsmanship of the Japanese artist, and partly to show how cleverly the habit of the species is given (fig. 123). The scaly stem is very characteristic, so is the ragged margin of the pileus, and the habit of growing in rings or parts of rings is well shown.

A second illustration, not reproduced, shows two large plants just as we find them in this country. The results of eating this fungus are also identical in Japan and Britain, for the author says all who have eaten it get "stomach-ache, vomit and purge." It seems to have been eaten by the author by accident, but he, with others, avoided disaster by using Birch-bark, "which cured them in narrow escaping;" then we found this fungus to be very venomous. Happily," says the author, "I escaped. To be cautioned. If a man takes this fungus by mistake, it is sure to cause vomit, stomach-ache, or lunatic-frolic; if severe, man is killed." The name of "Moonlight Mushroom" is derived from its phosphorescence at night. It has a second popular name, viz., Huyasuke-take, because in "ancient ages" one Huyasuke was killed by it. The plant, we are told, is to be distinguished with caution, and that, generally speaking, the poison of Mushrooms may be cured with a "decoction of Birch-skin." In sudden cases, "powder of clay-ware" is recommended; "also laying the body on the ground" is said to be "a good cure." This very simple "cure" might be tried by some of the members of our mycophagous clubs, and the results reported to the *Gardeners' Chronicle*. After the "Moonlight Mushroom," a good illustration is given of what appears to be the allied Agaricus longicaudus; this is said to be "very venomous and fatal," just what we should expect of the plant here. Further on, an illustration of another Lactarius is given, and a "Fungus of a Church," because "a monk first ate it, and then many followed him." A plant which seems to be Agaricus melleus is given, the taste of which is said to be "refreshing and fine enough for eating." A certain fungus is said to be the "Oshuggarushi" of the Aino-tribe; this has a "light taste." A crimson Russula is the "Kenekarushi" of the Ainos, with a "light, slightly poisonous taste. The first volume concludes with illustrations and descriptions of Clavarias.

Volume II. commences with an excellent illustration of Nyctalis parasitica, which is said to be poisonous, and "not counted a culinary article." Then an Amanita or Volvaria, which is said to be "very venomous and kills man." Next, Agaricus Vittadinii, and the "Moonlight Mushroom," again. Another Amanita is then given, "very venomous and fatal." Further on a Starry Puff-Ball is given; it is used, we are told, for "stopping blood." Another Starry Puff-Ball is illustrated further on, and named the "Deaf Fungus," because if it be "philliped," yellow powder comes out, which causes deafness if it enters the ears. Passing on we come to the "Grasping Fungus;" we are told that if it is held in the hand it shrinks, and if the hand is off "soon inflates." An Agaric, which looks like our Agaricus subinvolutus, is called the "Maple Mushroom," and the "Jobeni Karughin," of the Ainos, the description of which states that "one does not stop laughing" after eating it. Other Amanitas follow, one, the "Fly-catcher," is said to be venomous, "and surely flies die by eating it." Aseröe, Clavarias, and a Boletus follow, and a Polyporus found on the Mulberry. This, it is said, "cures very well the stubborn paralysis." A tinder Polyporus is illustrated, and a "Red Hardy Polyporus." Polyporus officinalis of the Larch is said to have a bitter, strong taste, and to be good for "curing the bellyache." It is satisfactory to learn that one exceptional fungus cures the "bellyache," the majority certainly cause it. A few other plants, not fungi, are illustrated and described, such as Ophioglossum, Gastrodia, Orobanche, &c.

The two small volumes are well worthy of careful attention, both for their illustrations and descriptions. *Worthington G. Smith, Dunstable.*

FÜHRER DURCH DEN KÖNIGLICHE BOTANISCHEN GARTEN IN MÜNCHEN. Von Dr. K. Gœbel, Professor of Botany.

This is a small guide-book to the Botanical Gardens, Munich, indicating the plants which possess special interest to the visitor. This botanical garden, since Dr. Gœbel induced the municipality to afford it monetary support, and indicated its importance as a teaching establishment, is much visited, especially on Sundays and holidays, and in summer till late in the evening, this last a circumstance scarcely to be found anywhere else, and least of all in Germany. This garden is not, like most of the botanical gardens of the country, a university institute, but belongs rather to those bodies which are under the general direction of the Royal Academy of Science and Art, but which are in close connection with the university. The garden was founded by King Maximillian Josef I. in 1807, whilst the university was not transplanted to Munich from Landshut till 1826.

The garden was laid out under the direction of Prof. Franz von Paula von Schrank. The garden consists of two divisions, the "large" and the "small," separated by the Sophienstrasse. The guide-book affords an idea of the cost of the up-keep, and gives the rules to be observed by visitors; then follow brief chapters descriptive of the various portions of the garden, beginning with the small garden, the more remarkable plants being mentioned, and their peculiarities and attributes alluded to. A useful manual for the visitor or student who does not want to waste time in discovering the whereabouts of such things as interest him.

HOME CORRESPONDENCE.

COLUMBINES.—I do not think these hardy flowers have ever been regarded as florists' flowers, although remarkable improvements have been effected in them since Mr. Douglas first set the ball rolling by intercrossing some of the charming species that are even now none too widely grown. Since then others have taken not only the species but their hybrid products in hand, and without exercising much of the breeder's art, yet by constant selection and such intercrossing as Nature furnishes, there have now been produced strains of the most remarkable beauty as well as varied in colours. It is one of the happy characteristics of the breaks, that they all present in a high degree the long-spurred form, without which Columbine flowers seem so stiff and formal. Very much has been done to give variety to the old garden forms, but in no case that has come under my notice have the long spurs been produced from them. One cross I made some years ago between a chrysantha and one of the garden forms resulted in the production of flowers that were not only absolutely spurless, but produced corollas so expanding that the flowers closely resembled small Clematis blooms. The product was curious, but not pleasing; but of the true strains that were obtained from the best species, there can be no question as to beauty that is to me marvellous. When last summer I stood in the midst of a huge breadth of these Columbine hybrids, on Messrs. Cannell's Eynsford farm, I could realise that no greater floral beauty could be furnished by any other plants. There are many combinations of colours found that I had not previously seen, and I literally revelled in the privilege to go through the break, and indicate which of the many thus in bloom seemed to be most worthy of selection. Seeing that these plants seed freely, are so easily raised from seed, and once strong, bloom so finely for several years, how is it that we do not find them in all gardens? Generally they are not found at all. Many gardeners do not seem to know of them. It is a favourable time to refer to them now, because we are near the season for sowing. The month of May is a good time, and the sowing may be made out of doors on good soil and in broad-cast form, or in shallow drills, as may be preferred. Seedlings thus raised and transplanted into beds or borders, wherein to bloom in August or September, make fine flowering plants the following summer. One result of intercrossing species has been in the hybrids greater strength and floriferousness. There is no suspicion of barrenness in the products, because the original species are so closely allied. Certainly the intercrossed product has been found in a glorious floral addition to our gardens. *A.*

MR. MALCOLM DUNN.—An announcement of the sudden death of this distinguished and estimable Scotch gardener has come as a severe shock to all who knew him. Truly of him may it be said that "in the midst of life we are in death," for all might have given him threescore and ten years of life, so hale and hearty did he appear to be. It was but the other day his name appeared as one of the chosen three judges for the great Grape class at Shrewsbury, next August, but the famous Shropshire Quarry will not hold him again, and a melancholy duty is cast upon the Home Committee of selecting another colleague for Messrs. Thomas and Crump. Scotchman as he was, horticulture claimed him as her own, and horticulture knows no nationality. It was, without doubt, as a distinguished Scotch gardener all the same, and as a representative horticulturist of the race beyond the Tweed, that he was selected to receive one of the Victorian Medals of Honour. During two years from the installation of the medal, none of the sixty has died till now, and Malcolm Dunn is the first to travel the road of honour into the realms of the great unknown. The council of the Royal Horticultural Society will have a difficult task to perform in worthily filling the dead gardener's place, but in any case they can barely ignore Scottish claims if advanced. It was easier to select sixty than to select one out of numbers of good men. Doubtless, Scotland will strive worthily to raise a memorial in honour of the departed. It was his lot to follow in the path and work of one of Scotland's greatest gardeners, William Thomson. It will need a good man to worthily sustain as Dunn's successor, his and Thomson's reputation, and that of famous Dalkeith. *A. D.*

CUPRESSUS MACROCARPA.—In the villa gardens round about Torquay this Conifer is put to valuable use, and if proper attention be afforded, it admirably answers its purpose. Many of the villas are built on undulating land, and the roofs of some are almost in a line with the ground floors of those just above them on the hills. It follows that the garden of one is often open to those of its neighbour, and even to those placed on level ground, there is always a desire on the part of the occupants for a certain degree of privacy and seclusion, so essential to the enjoyment of a garden. The garden-walls are about 3 or 4 feet high, with soil on the inside borders almost level with the top of the wall. On this a number of Cupressus macrocarpa are planted, 2 or 3 feet apart, and being a quick grower, the lower portion soon thickens; and when the plants have grown some 6 or 8 feet high the leaders are cut away which encourages the thickening of the top. Ere, however, this finishing part is permitted, it is necessary that a strong iron railing be run the whole length of the intended hedge, and stout iron standards and stays well secured to the wall as well as the border inside with a couple of rails, one about 2 feet from the ground, and the other 5 feet. These, of course, are firmly fixed to the uprights, so that when finished the whole is strong and able to resist the winds which will, by-and-by, try the hedge. The plants are secured to this iron railing, which is soon hidden, and as they reach the height previously mentioned, topped and clipped, a most compact and beautiful hedge is formed which entirely shields everything in the garden from the gaze of passers-by or from neighbourly observation. The hedge may be permitted to measure 3 feet through at the base, gradually sloping in height till the top, perfectly level, is about a foot in thickness. Some run just 6 feet high, 2 feet at the base, sloping gradually to the top. The bright, pleasant green of the young shoots just at the present season makes such a hedge singularly attractive. Some of the owners, I notice, have made provision for the little gaps that occasionally occur in the lower part of the plants by planting a row of Euonymus between the Cupressus and the walls; these are kept dense and compact by constant clipping. The variegated forms as well as the common Euonymus are used, the whole making a very pretty and complete bank of vegetation, always green, and most attractive. The beauty of such a hedge is, of course, enhanced and preserved by regular clippings—twice a year they should be attended to by one who thoroughly understands his work. Of course, any one can use a pair of clipping shears; but where straight and curved lines and level top are to be maintained, it is very desirable that one who is somewhat of an adept at his work should be always permitted to do it. In the hot summer seasons in the south of Devon, and on raised banks and borders, it is necessary that the hose-pipe be used, and abundant supplies of water constantly afforded, as only by such means can the health of the hedge-plants be maintained. *W. S., Exmouth.*

THE PEAR MIDGE.—The mischievous insect, "Diplosis pyrivora" is again infesting our Pear-trees in considerable numbers, notwithstanding all our preventive measures taken every year. These consist of sending men to pick off the tiny lop-ended or deformed Pears, and burn them, which is done by the bushel. This is repeated several times, and to make doubly sure, fresh hot gas-lime is strewn under the trees. In order to prevent our neighbours' crop of midges invading this garden, all of our trees were sprayed daily, weather permitting, for a fortnight previous, and right up to the time of the opening of the flowers, with a mixture of Quassia and soft-soap; but this has not been successful, and it made apparently little difference. The adult midges are very small, and not therefore readily distinguishable. I have been advised to strew kainit under the trees at the rate of 4 oz. per square yard, to receive fallen fruit which might contain larvæ, as well as such of the larvæ that have burrowed their way through the sides of a fruit, with the object of hybernating in the soil. This experiment is having my careful attention, for I think no trouble too great that will enable me to master the Diplosis, which will otherwise render Pear cultivation at Madresfield impossible. It is a pity that many persons neglect to take precautions. It is well for every gardener to examine his Pear-trees, and if any of the fruits are seen to be bottle-shaped, and not of a symmetrical form, he should slit them down through the core, when, by the help of an ordinary lens, the larvæ will probably be found. It is curious that Williams' Bon Chrétien and all the allied kinds, such as Beurre de l'Assomption, Beurré d'Amanlis, and Souvenir du Congrés are affected much more than the later-flowering varieties. I am of the opinion that the Pear-midge propagates in neglected orchards, and is carried by the wind in the same way as the winged aphis, when disturbed by my neighbours the Hop-growers, especially in the autumn or late summer. *W. Crump, Madresfield Court Gardens.*

THE WEATHER NORTH OF THE TWEED.—This gets worse and worse, though we are within a week of the end of May; and so far as we have gone, the weather throughout has been more like December or March than May, with its dew-spangled flowers of freshness and fragrance. The general opinion is that already the produce of field and garden is some three weeks behind the calendar, and growers are beginning to ask anxiously about the beginning of the forcing-weather so much needed to enable our crops to run abreast of our calendars. Hitherto our many changes of wind have brought us few or no changes of weather. The west winds have proved about as cold, and far stronger than the east, and the south winds have not blown long enough at a time to temper the severities and harshness of those from the north and north-east. Though we have had little snow save those showers and storms that converted such large areas into sheer winter on May-day, the rains have been almost as cold as sleet or snow; and the frosts, though not severe, have arrested growth in all tender crops, in many cases cut back most precocious Potatos to the ground-line, entirely arrested the growth in the open air of young seedling flowers and vegetables, and very much thinned the forward blooms of the Peach, Nectarine, Apricot, Plum, Pear, and even of the Cherry, the blooms of which are hardier than either. The lateness of the season promises to prove a decided advantage to the most important crop of all our fruits—the Apple. The Apple-trees and bushes look remarkably well in most districts, and promise to be the fruit crop of the season, as they were also last year. Fruits of the Gooseberry and Currant situated on the extremities of the shoots have been frozen; but, on the whole, our bush-fruits of all kinds give promise of a full crop. Strawberries seem scarcely to promise an average yield, and not a few experienced cultivators hold that a Strawberry crop is seldom as good a one after a mild, wet, as after a hard winter. *D. T. F.*

A LARGE PLANT OF THE CLIMBING DEVONIENSIS ROSE.—There is here a plant of the climbing Devoniensis Rose, which covers the entire span-roof of a greenhouse 40 feet in length and 20 feet in width. The plant is in perfect health, and yields hundreds of Roses every year. I know nothing about its age, but should suppose it is considerable, the stem at 2 feet from the ground being fully 12 inches in circumference. *J. Tweedie, Newbank, Edinburgh.* [Not so very large. Ed.]

FLORISTS' FLOWERS.

HINTS ON POTTING CHRYSANTHEMUMS.

Some cultivators make a rule of potting the plants during a certain week in May or June. Rigid adherence to a particular date may answer well in some seasons, but as a rule it is not a praiseworthy arrangement. The best practice is to take into consideration the state of the plants. If the pots in which the plants are growing be 5 or 6 inches in diameter, and full of roots, then they should be at once transferred to larger pots. Chrysanthemums should be free from checks to growth at all times, and if permitted to remain in pots until the roots have become matted, this necessary principle will be violated.

In the cultivation of Chrysanthemums for the production of large blooms, there is much difference of opinion amongst growers as to the size of pot necessary. Some prefer those 10 inches in diameter, others will use pots of 7 inches diameter. But in the latter case one bloom only is allowed to each plant, and this practice is largely increasing. As a general rule I prefer an intermediate size, say a 9-inch pot; and for weakly growing kinds, pots an inch smaller; extra-strong growing sorts might be given 10-inch pots. But after all, very much depends upon the after treatment the plants receive.

In respect of compost, a very suitable one for the bulk of varieties would be composed of three parts fibrous loam to one part half-decayed horse-manure, with sufficient sand and charcoal added to ensure porosity. A further addition may be made of 2 lb. of Thomson's Vine and Plant Manure to every bushel of the compost. Well-drained pots are a necessity. Press the soil firmly into the pots, especially about the ball of earth containing the roots. Take care that the roots of the plants to be potted are thoroughly moist before being removed from the old pots, it being difficult to afford water for a little time afterwards without souring the new compost. *E. Molyneux.*

The Introduction of the Fancy Pansy.

Reverence for my old friend, the late John Salter, of Hammersmith, and admiration of his work, is my excuse for questioning Mr. R. P. Brotherston's statement, on p. 307, that "about 1860 John Downie introduced the Fancy Pansy from Belgium." This sentence is no doubt meant to give John Downie the credit of having first introduced the Fancy Pansy to the United Kingdom. Happily, I have documentary information which shows that the Fancy Pansy had its origin at Shepherd's Bush.

Sixty years ago John Salter resided at Shepherd's Bush, and was an enthusiastic cultivator of florists' flowers. The Pansy was then undergoing improvement at the hands of Thompson and others, and had led to the ingathering of a harvest of good things. At that time a widely popular exhibition of Pansies was held at Hammersmith, and John Salter, then an amateur cultivator, grew improved and probably exhibited Pansies. When, in the early forties, he went to Versailles, France, and established a nursery there, he took with him his favourite Pansies, but the heat of the French summers and the cold of the winters did not suit them so well as the English climate. Still, he continued to raise seedlings, and being a dealer in novelties, no doubt distributed them in the course of business. The French florists, who could never quite fall into line with Glenny, Brown, Hale, and other raisers of that period, appeared to have favoured John Salter's seedlings. By 1847 he had raised some curiously striped and blotched varieties, seed was saved from the best of these, and when early in 1848, through the outbreak of the French Revolution in that year, Salter gave up his French establishment and came to England, bringing with him his best selections of seed, which were sown by him at his Versailles Nursery at Hammersmith. In 1850 he brought his strain of Pansies into prominence by offering varieties for sale, not exactly as show flowers, but as deserving of recognition on account of their fantastic colours. In 1851 Salter (whose nursery was close to Addison Road Station, and was much visited by foreigners who came to London) offered three named varieties for sale, viz., cœrulea striata, white and blue; Mars, bronze and yellow; and Novelty, yellow, striped with maroon. In 1852 sixteen new varieties were sent out by Salter, all of his own raising; and in 1854, other and improved varieties were distributed. That the term "Fancy Pansies" is of much earlier origin than is generally supposed I establish by giving an extract from John Salter's catalogue of 1854. "Fancy Pansies: This class was first brought into notice in 1850 by John Salter, and were then not offered as show flowers, but for their fantastic colours. Since that time they have been greatly improved in form, and the new varieties of this season will be found larger, more regularly striped and blotched, and a great addition to this distinct and attractive class, which promises to become as popular as the fancies of any flower." There were Fancy Dahlias, Fancy Pelargoniums, &c., in cultivation in that day as there are now.

By this time, M. Miellez of Lille, who greatly distinguished himself as a raiser, had sent out one or two very fine varieties. Quite lengthy lists of new varieties appeared in Salter's catalogue for 1857 and 1858, in the latter many Fancy Pansies were named, including Magpie, a very distinct type, clear blue with white blotches, which, it is to be feared, is now very difficult to be obtained in its original character. It is said to have been discovered growing in a corn-field, and forty years ago it was also known under the synonyms of Mazeppa, Paul Pry, Wonderful, and La Pie.

An enormous impetus was given to the development of the Fancy Pansy in this country about 1858, when Mr. A. Henderson, then of Wellington Road Nursery, St. John's Wood, while travelling in France, discovered some new forms of blotched Pansies. As he could not successfully cultivate them in the then rapidly-growing district of St. John's Wood, he sent them to my brother, William Dean, who had but recently established himself in business as a nurseryman at Shipley, near Bradford, to grow for him in the cooler and moister climate of Yorkshire. These varieties were great improvements upon what had previously been seen, and they were also the production of Mons. Miellez. The first batch sent to Shipley were Eva, Bob, floribunda, Cerberus, cœrulea alba, Eckard, and others; and they were followed by Prince Imperial, Ali Bey, Parpaillot, Miracle, Agnes Sorrel, Napoleon III., and Massaniello. As I spent the autumn of 1860 and all the spring of 1861 at Shipley, these Pansies came under my care, and I have a vivid recollection of them. In 1861 came Belle Esquermoise, Louise Miellez, Distinction, and others; the next year came Octavie Demay and Nœmie Demay, and with these and the death of Mère Miellez the supply from France came to an end.

Meanwhile, W. Dean had commenced to raise seedlings, and the first batch sent out by him was in the autumn of 1861, and consisted of Princess Alice, Donald Beaton, Etoile du Nord, Tiger, &c. In 1862 and 1863 new batches of varieties were also distributed, and the term "Belgian Pansies" was applied to all that my brother raised and sent out.

PORTRAIT OF THE LATE JAMES KELWAY.

In Scotland, John Laing, then of Dysart Gardens, was the first to take in hand this type of Pansy, and his first seedling of note was a bright-coloured flower named Professor Berkeley. On joining Messrs. Downie & Laird in business the firm took up the culture and improvement of the Belgian Pansy with spirit, and despite the prejudice against them on the part of those who valued the old type of English show Pansies—yellow grounds, white grounds, and selfs—the Belgian sorts made headway; their latent possibilities were recognised, and the future foretold for them abundantly realised. Brilliancy of tint, variety in colour, richness in expression, solidity of substance, and vigour in growth, are the leading characteristics of the fancy Pansies of our day. Their robustness is in marked contrast to the constitutional debility of many of the English show varieties. *Richard Dean, Ealing, W.*

Obituary.

Mr. James Kelway.—The death is announced of Mr. James Kelway, senr., of the Langport Nurseries, on the 17th inst, at the ripe age of 83 years. He was the founder of a firm widely known for its enterprise, and for its success in the improvement of some of our most popular flowers. Born at Westholme, near Shepton Mallet, on Nov. 2, 1815; he was educated at Wells and Wellington, Somerset. As a lad he was noted for his cleverness and his painstaking application to his studies; he was desirous of assisting the best interests of others, and at the age of sixteen had gathered about him a class of some eighteen lads whom he nightly instructed in the elements of learning. From his youth upwards, flowers and their culture greatly interested him, and it is on record that he was an exhibitor at a flower-show at Glastonbury at the age of fifteen, and he was so successful that twelve first prizes and five second prizes fell to his lot out of twenty-three entries. It was his first attempt as a competitor; his success was prophetic of his future career. At the age of eighteen, Mr. James Kelway had entire charge, with a staff of men under him, of the Gardens of Dillington House, near Ilminster, and lived there for the space of seventeen years. In 1850 he purchased the old dwelling-house (now the offices of Messrs. Kelway and Sons) and an acre or two of land, which formed a small nursery, from a Mr. Isaacs, at Huish Episcopi, the parish adjoining Langport, removing here with his family in 1851. This formed the nucleus of the present nursery of 200 acres, having on it four dwelling-houses, and several cottages, and farm buildings. It is worthy of note that the Gladiolus, the flower with which the name of James Kelway is closely and successfully associated, attracted his attention for the first time at Glastonbury, where in 1830 he saw a specimen of Gladiolus psittacinus exhibited, and a desire to cultivate and improve it was born in him. On commencing business near Langport, he paid special attention to the hybridising and culture of this flower, and early in the sixties commenced that series of successes in the exhibition of it, which before long made the name of Kelway known throughout the Kingdom, and ultimately throughout Europe, America, and the colonies. In thirteen years it may be said of him that he was pre-eminent in this particular field, and the International Exhibition held in Paris in 1878 proved that his productions in respect of novelty and quality were second to none in Europe. In the year 1866, he distributed new varieties of Gladioli, which his patience and skill as a hybridist was enabling him to produce for the enrichment of gardens. The *Gardeners' Chronicle* in 1891, in the course of a review of the productions of the preceding fifty years, remarked:—"There are two plants whose names occur as deserving of unstinted praise, two plants in whose cultivation immense advance has been made, and before whose state of perfection criticism must bow with bated breath. Each of these plants has been taken in hand and perfected by one man in particular, which is a rather remarkable fact: the men and the flowers are Veitch and the Amaryllis, Kelway and the Gladiolus." How many unique varieties have been produced and exhibited by James Kelway up almost to the period of his death let the records of the Royal Horticultural Society testify. It is with the Gladiolus in particular that he was able to accumulate that large collection of medals, cups, &c., awarded to him from time to time.

It must not be supposed that the Gladiolus was the only plant so successfully improved by this remarkable man. It is claimed for him that he was among the first in the work of improving the Cineraria, as also in improving the Frame-Cucumber, some popular varieties having originated at Langport. Later in life the Pæony, the Delphinium, the Pyrethrum, &c., came under his care; the second of these especially being improved by the firm in a really wonderful degree. It was well and truly said of James Kelway in 1884, that "he is a truly representative man, whose whole life has been given to the culture of flowers." In 1890, at the request of the Council of the Royal Horticultural Society, Mr. Kelway delivered a lecture on "The Gladiolus" at one of the Society's meetings.

It is only possible in a limited space to touch upon a few of the flowers cultivated with so much success by the Langport firm; suffice it to say, that a large and remunerative business has been built up, which will be continued by sons and grandsons along the lines laid down by its once active head. Not less remarkable was his activity in public life. As churchwarden, an office he held for the space of 33 years; as a member of the School Board; as a member of the Langport Town Trust, and in other ways he devoted his energies to the well-being of his fellow creatures, and he has closed his active career, carrying with him to his grave the regrets not only of a wide circle of friends and acquaintances, but also with those of the extensive district throughout which he was so widely known.

Mr. James Kelway was twice married, his first wife dying in 1870; and he was married for the second time in 1872. He died surrounded by the members of his family, who were ever to him a great comfort, especially in his declining years.

NURSERY NOTES.

MR. F. SMALE'S, TORQUAY.

The Torre Park Nursery, being but a town branch of the larger nursery on the Barton Road, some three miles from Torre Station, it has not a complete collection of plants, but amongst those noticed on a recent occasion was a grand collection of Cannas. The growth of the plants was sturdy and strong, and they will be sure to flower well when planted in the open ground.

Another special feature was the zonal Pelargoniums. These are stout, sturdy plants now in flower, among them being varieties with blooms of unusual size and vividness of colour. Here was Nicholas II., crimson scarlet; J. M. Barrie, bright pleasing crimson; W. E. Corden, clear scarlet, with bright eye, very fine; Virginia, pure snow-white; Sir Henry Irving, rosy magenta, very free flowering, and dwarf in habit; Condé, deep crimson, very large; Conan Doyle, clear salmon pink; Herrick, glowing crimson, very large and of good form; Lilacina, a very distinct shade of lilac, a choice variety; Sir J. Kitson, purple magenta, with white centre, free grower and bloomer; Ian Maclaren, deep salmon, fine in form and colour; Madame Bruant, white, netted purple, with purple band, very distinct; Southey, rich vermilion, white, a blotch; Wilhelmina, rich salmon colour, with scarlet centre, producing trusses of large size.

It is some time since I saw such perfect specimens of Gymnogramma schizophylla gloriosa as were growing here in 7-inch pots. The numerous fronds, with their finely-divided pinnæ, overlapped each other, and in some measure, by their density and compactness, reminded one of Todea superba. *W. S.*

SOCIETIES.

INTERNATIONAL HORTICULTURAL EXHIBITION AT ST. PETERSBURG.

May 17.—The third International Flower-show held at St. Petersburg was opened by the Czar in the Tauride Palace, a building comprising vast saloons built by Catherine II., and subsequently presented by her to one of her generals. Considering the great climatic disadvantages under which the gardeners of this country suffer, the show is remarkably fine; and though many of its best features have been contributed by Belgian, French, and German growers, who, at great expense, have sent many large groups, yet has it rarely been the good fortune of either Mr. Ker or myself to see so many hundreds of fine Tea and Perpetual Roses grown in pots as the local growers have massed in various groups.

The great body of the main saloons, especially that portion near the royal platform, is filled with large groups of Palms from the imperial gardens, some of these, and notably the Caryotas, being really magnificent specimens. In conjunction are standard Rhododendrons, well-flowered, from M. Moser, of Versailles, and masses of Hydrangeas from Sallier, of Paris. The French section is the strongest, many notable nurserymen being well represented.

MM. André and Martinet have very large and elaborate plans of landscape gardening; and more than one French amateur has sent the best of his Orchids.

The English exhibitors are not many—Messrs. Ker, of Liverpool, with Amaryllis; Messrs. Sander, of St. Albans, with a collection of general stove plants; and Messrs. Veitch, of Chelsea, with insectivorous plants, are the sole representatives of British horticulture.

The Belgians are strong in Anthuriums, Azalea pontica seedlings, Araucarias and Palms; and Messrs. Peeters, of Brussels, have sent a really remarkable collection of Orchids, containing some of the latest and most interesting hybrids. Lilacs and Azalea indica, grown as standards, are masses of flower, and relieve the darker corners of the great halls, whilst in the grounds outside are many groups of variegated and choice Coniferæ, and examples of fruit-tree training, such as our French cousins alone produce.

Considering that in shaded streets there is still snow, and that bitter easterly winds prevail, one can but honour the energy of the directors of the Exhibition in having produced such a show, which, even when judged by the standard of those seen in Western Europe, is of the highest excellence.

The Emperor and suite passed rapidly through the exhibition, and in the small English department Mr. Veitch had the honour to explain the marvels of the Nepenthes, Droseras, Dionæa, &c., of which his firm had sent such a notable and rare collection. The splendid Amaryllis of Messrs. Ker, Liverpool, gave brilliancy to the other groups, and were also warmly praised and admired. Mr. F. Sander, by permission of the Czar, dedicated a new Palm, Romanovia Nicölai, to his majesty. *J. H. V.*

ROYAL HORTICULTURAL.

Scientific Committee.

Present: Dr. M. T. Masters (in the chair), Dr. Müller, Rev W. Wilks, Mr. E. F. Im Thurn, and Rev. G. Henslow, Hon. Sec.

Diseased Hemerocallis, &c.—A leaf was received bearing decayed spots, apparently due to fungoid growth. This, together with a Peach diseased by a form of mildew, and Apple twigs with knots, were forwarded to Dr. W. G. Smith for examination.

Podisoma on Savin.—Dr. Masters exhibited specimens of this fungus, which gives rise to Rœstelia cancellata on Pear-trees.

Æcidium grossulariæ.—He also brought specimens of the "Gooseberry cluster-cups." It occurs on leaves and fruit of the Gooseberry and Currant. In some seasons it is of frequent occurrence.

Morel.—Dr. Masters also showed a small Morel, found—as is somewhat rarely the case—growing singly. He recorded the fact that after two Poplars had been blown down in Mr. Masters' garden at Canterbury in 1887, Morels grew every other year round the stumps. Mr. Im Thurn observed that the Morel was a common fungus on the Wiltshire moors among Beeches.

ROYAL BOTANICAL AND HORTICULTURAL OF MANCHESTER.

May 19.—The usual Whitsuntide Exhibition was opened on the above date at the Botanical Gardens, Old Trafford. Established about thirty-seven years ago, these exhibitions have been among the most prominent and successful in the United Kingdom.

This year, however, the exhibition fell short of its usual excellence, partly, perhaps, from the backward season, but certainly in a large measure to the apathy of local cultivators. There may be good reasons for this, for we cannot think it is due to a slight reduction in the prize money offered in one important class for Orchids. At most shows where Orchids are a feature, the local growers are pleased to exhibit their plants without any thought of prize-money.

At the Temple Show of the Royal Horticultural Society, for example, such amateurs have exhibited as Baron Sir H. Schroder, Sir Trevor Lawrence, W. Gurney Fowler, Sir Fredk. Wigan, H. S. Leon, and numerous others. They do this for the love they have for horticulture, and their brethren further north might well imitate them. The collections of Orchids in and around Manchester cannot be excelled in any part of the world, but on this important occasion the owners of them have certainly failed to display this superiority.

We have missed for a few years contributions from Mr. Fred Hardy's collection, one of the best in Manchester; this year we miss the Elijah Ashworth's, Mr. Warburton's, Mr. Statter's, and the beautiful collection which Mr. W. Thompson, of Stone, Staffordshire, has usually sent. The show is a protracted one, being open from the Friday preceding Whit Sunday until the following Thursday evening. The Orchids are staged in a heated house.

Orchids.

In the competitive classes, Mr. James Cypher gained 1st prize for a group of plants, which was very tastefully arranged, partly on stages and partly on the ground. Many fine specimens of Lælia purpurata, Cattleya Mendeli, C. Mossiæ, very fine, splendidly-grown plants of Oncidium concolor, and Sophronitis grandiflora. Many interesting varieties were also in the group, including Lælia Digbyana, of exceptional size; very fine forms of Cattleya Aclandiæ, one of a dark chocolate colour entirely, no bars of any kind being present. Mr. John Robson, Bowdon, Manchester, gained 2nd honours, with a fine group of well-grown plants, among which were two fine forms of Odontoglossum crispum.

For a collection of Cattleyas and Lælias, the 1st prize was awarded to Mr. J. Cypher; Messrs. Heath & Sons were 2nd.

For ten specimen Orchids in bloom, Thos. Harker, Esq., Fallowfield (gr., Mr. Mulloy), was 1st.

Messrs. Charlesworth & Co., Heaton, Bradford, Yorks, made a fine display of good and choice Orchids, amongst which was a collection of semi-established plants of Odontoglossum crispum of a very good type, and which was stated to have been gathered from Messrs. Charlesworth's own mountains. A noticeable plant in the group was Odontoglossum "Harvengtense" which is supposed to be a natural hybrid between O. triumphans and O. crispum; this is doubtful, and the lip is the only portion of the flower which suggests the slightest trace of the latter parent. It is, however, a very good plant, and has found its way to a good home for Odontoglossums. O. hystrix magnificum had fine colour and size, and O. crispum "var. Georgiana" is a flower of pretty form and markings (Gold Medal).

Messrs. John Cowan & Co., Ltd., The Nurseries, Gateacre, made an excellent display, occupying a length of about 40 feet of wide staging. Noticeable in the group were some very peculiarly marked varieties of Lælia purpurata, three fine plants being almost pure white, with the exception of faint pencillings of lilac in the labellums. Many good forms of Cattleya Mossiæ were shown, one called C. M. magnificum being the best. Cattleya citrina was shown splendidly in this group (Gold Medal).

L'Horticole Coloniale (Linden), Brussels, made a grand show with about fifty plants, every one of which was of a choice variety. Odontoglossum crispum var. "Countess of Derby" was thought to be the *pièce de résistance* of the group, and it certainly is an elegant flower, a branched-spike bore twenty flowers of good shape, medium size, and peculiarly marked with small round spots. Many forms of O. × Adrianæ (O. crispum × Hunnewellianum) were displayed, varying in colour from very pale yellow or dirty white flowers to the deep coloured forms of O. sceptrum. There were fine forms of Miltonia vexillaria, one almost pure white called "candidula." The Belgians seem still to be able to show us how to grow M. vexillaria, as well as many Odontoglossums.

First-class Certificates were awarded to Odontoglossum crispum var. Countess of Derby and O. Adrianæ var. leopardinum.

Awards of Merit were given to O. hybridum var. fascinator, O. Ruckerianum var. Queen Victoria, Miltonia vexillaria var. vittata, and M. v. candidula (Large Gold Medal).

Messrs. Hugh Low & Co., Bush Hill Nurseries, Enfield, showed a small but choice group of plants. Odontoglossum Andersonianum giganteum was thought worthy of a First-class Certificate by the Orchid judges, a similar Award being given to a fine plant of Cattleya intermedia alba. The same firm showed a good form of Odontoglossum × excellens, and a pretty white form of O. Pescatorei, called virginalis (Silver Medal).

Duncan Gilmour, Esq., of Sheffield, staged a good group of plants, principally consisting of Cattleya Mossiæ (Silver Medal).

MISCELLANEOUS.

There were classes for Stove and Greenhouse Plants, Groups of Miscellaneous Plants, arranged to produce effect; Roses in pots, Ferns, Gloxinias, Calceolarias, Begonias, Caladiums, &c.

Messrs. **Waterer** & Son, Bagshot, Surrey, had one of their usual grand displays of Rhododendrons, and a large space was occupied by their exhibit. A novelty, named Pink Pearl (Award of Merit), caused a sensation on account of its fine blooms and warm rose colour.

Messrs. **Webb** & Son, Stourbridge, put up a group of herbaceous Calceolarias, of a good strain.

Messrs. W. **Clibran** & Son, Altrincham, exhibited herbaceous and greenhouse plants, brightened by pretty clumps of Salvia splendens.

Messrs. **Dicksons**, Chester, staged a nice group of a new yellow Carnation, and a collection of Auriculas (Silver Medal).

Mr. J. J. **Upton**, The Nurseries, Irlam, sent an exhibit of his strain of Gloxinias, which was unsurpassed by any shown from private collections (Silver Medal).

Messrs. W. & J. **Birkenhead**, Sale, had an interesting collection of Ferns (Silver Medal).

The Misses **Hopkins**, Knutsford, Cheshire, had a very pretty table of Violas and Auriculas. A. Golden King is well worth growing, on account of its very free-growing and flowering habit.

FRUIT GROWING IN KENT.*

(Concluded from p. 324.)

In the Future.—Without in any way venturing to prophesy we have seen enough of the success of the best fruit growers, to outline in some degree the probable course of commercial success in the future, for it is to the newly-planted orchards, where the sorts are of the best for their special purposes, and where clean cultivation obtains, that we must look for our chief supplies in time to come. In America and Canada, they consider 15 years the average life of a paying orchard; the trees are then destroyed, and a fresh start made. In this country 25 to 30 years may be considered as the outside limit, and by that time the available nutriment in the soil may be considered to be exhausted by the standing trees.

It will, therefore, be well before that time expires to provide other orchards to replace the condemned patches. This may appear to many a drastic proposal, but the stimulating manures now given tend to strong sappy growth, therefore I think I have not overstated the case. Again the public is fast being educated to distinguish between good and inferior fruits, and growers will find their future profits to lie in producing examples of the finest sorts.

At present, colour is the market factor in Apples more than quality, red and yellow being chosen for dessert, and green or golden for kitchen sorts, and expert observers will notice that this excludes many of our best flavoured fruits, which being russety or of a nondescript appearance, do not sell on the market boards, though where quality is asked for they cannot long remain unknown. We may look also to improved methods of packing to secure higher prices. Instead of the half-sieve (four gallons) and the sieve baskets, choice fruits should be boxed and placed in punnets and suitable packages, so that on reaching their destination they need not be again handled before reaching purchasers. Many advocate a non-returnable wooden box, such as is used for Oranges. A start has been made with ripe Gooseberries, White Currants, and Raspberries in punnets, and good prices result. The best Strawberries are of course marketed in ½ lb. and 1 lb. reputed punnets. I think also that the use of artificial manures suitable for special soils and crops must engage the attention of growers in the future. It is evident, from the use of kainit, soot, fish guano, basic slag, and rich portable manures, that the fertility of the land must be increased and retained, while with such manures the crop of weeds which so often follows the use of stable manure may be avoided. There is another way in which growers should copy American producers, and that is by planting large bulks of one sort of either Plums, Apples, or Pears, so that day by day buyers can make sure of a supply of the same article. The wisdom of this is seen in the fact that when a retailer gets an Apple that suits his customers, and they have taken a fancy to it, the supply is often gone, and he buys another sort, which has to be tried before the public will take to it freely; whereas if a salesman were able to say "I shall have this sort for 14 days or so," the retailer could better gauge his wants and suit his customers. This also applies to Plums, and in fact to all fruits. As I have before stated, all old and worn-out orchards should be destroyed, as I feel confident that, with the vast quantity of improved sorts which the nurserymen of the present time have distributed, there will be no paying market for inferior fruit. The fruit of the future, again, must be carefully gathered, evenly sorted, well stored, and honestly packed; those men whose character is known on the market can always make the best prices, and any sharp practices in the way of mixing sorts and topping-up always recoil on the sender.

Growers, too, must look further afield for outlets, and I feel that the system of sending such huge bulks to London markets, only to be transhipped to other cities and towns, is doomed. Our largest growers pack their fruit, to suit distant markets, in baskets, barrels, or cases, as the particular market affects, and send it direct from their local stations instead of to London first, and thus make the best prices. It is obvious to all that there is neither time nor space in the large London markets to deal with the vast quantity that is sent there in busy seasons.

These remarks, however, are in no way intended to disparage London markets or London salesmen who do their very best for clients; but the course indicated will save those gluts of produce in the London market, and prevent lowest prices. London will always be well supplied, and can consume a vast quantity, but producers on either a large or small scale will find it pay best to send the best only for London sale. It is manifestly unfair to send the best only to distant markets, and the inferior to London, because the carriage is less, for it is a known fact that (as a rule) London buyers always give higher prices for picked fruit than provincial markets realise. There is a growing demand for fruit jellies, flavourings, temperance drinks, jams, preserved and bottled fruits, and further developments of these industries are to be looked for, not only in a trade sense, but in private families, as the process is now so simple with the new and improved automatic bottles. I have not touched on the culture of fruit under glass, because it is not within the scope of this paper. The most prosperous branch of this culture is no doubt the growth of Peaches and Nectarines. But we yet require more time to know what effect the maintenance and repair of the comparatively flimsy glass structures of the market growers may amount to, before we can consider the matter tested to an issue. Tomato-growing is really properly treated as a vegetable industry, though on the border land between a fruit and a vegetable.

Fruit Sales by Auction.—These sales in Kent are looked forward to with great interest by buyers and sellers. Cherries are generally sold first, on the trees, and the competition is often very keen for choice lots. They have been known to make £80 per acre, but that is an exceptional price. Plums are often included. Bush fruits and strawberries are sometimes sold by auction where the grower prefers a certain price "cash down" to the chances of market sales. All these are called soft fruit sales, and later on Pears and Apples are also sold by auction as hard fruits. In these sales the buyers are either local men who make it a trade, or London salesmen who have made contracts to supply buyers. The buyers take all risks, the sellers getting ready-money, and safe-guarding themselves by the customary rules as to damages. It is not advisable to sell fruit by auction from trees under ten years old, as naturally buyers' pickers are not so careful in gathering the fruit as the owners would be, and young trees are apt to be seriously damaged by heavy ladders being used. The growers pick young trees with step-ladders, which stand without the support of the tree itself.

The Kent System in other Counties.—My visits to various fruit centres have impressed on my mind the fact that we in Kent do not enjoy a monopoly of the best soils and situations, and it is certain that where the Kent systems of pruning and culture are faithfully carried out, there are thousands of acres of available land that could be profitably brought under fruit culture. This is demonstrated in many distant counties, where the orchards have been started with healthy young trees, the results astonishing the planters. I, as an expert, receive very fine fruit for naming from even Scotland and Ireland.

Social Aspect.—It will be conceded that the growth of fruit has had a marked effect on the health of the middle and lower classes, and has also, I believe, helped the cause of temperance. This is due honour to sanitary engineers and authorities. I claim that the health of the large towns and cities has been appreciably improved by the fact that good wholesome fruit can now be purchased at a cheap rate, a remark which covers Oranges and foreign produce also. It is admitted that the extended culture of fruit has perceptibly raised the standard of living in Kent, as among the rural population, so much can be earned by the women, girls, and boys, combined with the higher wages paid as piece-work to the fruit men who live in the county, that the villagers are better fed and clothed than they used to be. At the same time fruit-growing prevents that depletion of villages which goes on in other places, while the general prosperity of the country is increased. This is also a national matter, because the best soldiers and sailors are found in recruits reared in the rural districts. It is well known that large numbers of fruit-pickers spend the summer months in Kent, coming from London and other populous towns, who, we fear, do not always take much cash back with them, but doubtless their health is benefited by work in the open air.

Probable Profits.—Hitherto I have spoken of practical matters relating to culture and disposal of produce. Naturally some idea of the profits of this industry will be looked for, and I feel unable to give these with any approach to accuracy because the information at my disposal has been rendered to me confidentially; and to speak of some of the large returns made would be unfair without discounting these results by losses through bad years, caused by wet seasons, late spring frosts, summer blights, gales, &c. Therefore, to arrive at an estimate it is best to take three years' profits and average them, when the result will work out as follows:—

Cherry	orchards	on grass,	per acre,	£20.
Apple	"	"	"	£15.
Mixed	"	"	"	£15.

These estimates are for established orchards in full bearing, and such would probably pay the rent if used as grazing land for sheep independent of the top fruit crop.

	Per Acre.
Mixed plantations with top and bottom fruit over four years old	£20
Gooseberries alone	£25
Raspberries "	£20
Red Currants "	£12
Black " "	£15

It will be readily understood that much depends on the state and condition of the orchards, and it may be remarked that these average profits are frequently doubled and trebled, while absolute losses are comparatively rare.

The cost of establishing a grass orchard is variously estimated at £15 to £20 per acre for the first year's outlay. If on arable land (as before stated) the outlay may be recouped by vegetable crops before the land is laid down to grass. The expense of establishing a mixed plantation is placed at £30 to £40 per acre. In the latter, an earlier crop amply repays for the extra initial expense. In estimating profits, some experienced farmers consider seven years a better average, as they fear that a less term is too short, as profits are sadly discounted by such indirect causes as strikes, epidemics, cold seasons, and wet weather.

The Kent System of Tenure as between Landlord and Tenant.—The rule in Mid-Kent is for the landlord to pay for such permanent trees as the tenant elects to plant. Some landlords also further allow a sum for planting and staking. Having first arranged with the agent or steward, the tenant is bound to plant, protect, and keep in order all such permanent trees. But if the tenant makes a plantation, he furnishes all the bushes, canes, and plants necessary at his own expense, and at the expiration of the tenancy he has no claim on the landlord for his outlay. This is a simple matter, and has worked well when the tenancy is 14 years or more; but if a tenant dies, or leaves before the expiration of his lease, the bushes are valued to the incoming tenant as tenant right; or the landlord pays for them, and gets the sum from the new tenant; or should he be unable to pay, an extra rent is charged to cover the landlord's outlay. The passing of the Market Gardeners' Act, 1895, placed tenants who have planted in the past on a firmer footing, as under it the outgoing tenant can claim compensation for his outlay (before 1895); which is assessed by valuation if tenant and landlord are unable to agree as to terms.

It frequently occurs that valuers' estimates differ widely, and a third man, as arbitrator, has to be consulted. I think in all cases a proper understanding should be arrived at on entering into a tenancy, and from experience I believe nearly all landlords and agents are ready to meet the wishes of a tenant possessing capital and energy. In order, however, to guard against an unfair advantage being taken by an improving tenant, it is customary on many estates for the words "under no circumstances shall this tenancy be considered as a market garden" are inserted in most leases. In other cases where the tenant finds the trees and plants, it is not unusual for an agreement to be made whereby the tenant at the end of his term receives a capitalised sum equal to several years' purchase on the increased letting value of the holdings, as then determined by agreement or valuation. In my opinion the Act would have been improved if a definite number of years had been fixed under which compensation could be claimed, as bush fruits are practically useless after 10 to 15 years, Plums begin to decline after 25 years, and Apples after 60 years; but under a 14 years' lease a tenant should have reaped his profit on all outlay except perhaps on a Cherry orchard. Undoubtedly the best plan is for the tenant to be a freeholder.

Cider.—As already stated, in olden days cider was largely made in Kent, and most old farmhouses had a cider press, but beer has now almost entirely taken its place as a local beverage. Your Society has already had a paper from Mr. C. Radcliffe Cooke, M.P. for Hereford, and I need not further allude to the subject, except incidentally, to mention that during the past few years it has been taken up by a Society in the Swanley district of Kent, which commands a ready sále; but they obtain some of their fruit from Somersetshire and Herefordshire, although, on the other hand, many tons of fruit find their way from Brenchley and Paddock-wood orchards to the Norfolk cidermakers, who certainly turn out a beverage that is refreshing and agreeable to those who are not born in a cider country, and who do not know the crucial points of excellence. Cider-making undoubtedly helps the prices of Kentish Apples, and a large bulk of good sorts, but not of a size quite up to market sale, being sold for cider, relieves the London markets. The Hereford makers, however, maintain that unless special "vintage" fruit is mixed with our Kent Apples the cider does not keep, because of the absence of tannin.

To indicate the interest taken in fruit culture by cottagers and small holders of land, no less than 50,000 lists of fruits in leaflet form with hints for culture have been sold by the Royal Horticultural Society, and a new edition is now issued and sold cheaply to county councils, the clergy, &c.

DISTANCES TO PLANT.

Orchard trees, standard Apples, Cherries, Pears, or Plums in orchards should be planted about 15 to 30 feet apart, and must be well staked and protected from rabbits and stock.

Number of Market Trees required per Acre: –

1,210 at 6 ft. apart – Closely pruned Pears on quince, or Apples on paradise, and for Gooseberries and Currants.

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* Extracts from a paper by Mr. George Bunyard, Vice-President of the Fruit Committee of the Royal Horticultural Society, read before the Members of the Society of Arts on Wednesday, May 10, 1899, Sir Owen Tudor Burne, G.C.I.E., K.C.S.I., in the chair.

680 at 8 ft. apart—Apples on paradise (every other one to be moved in a few years).
435 at 10 ft. apart—Feathered Apples or Plums.
303 at 12 ft. apart—Permanent bush trees, pyramids, and nuts.
193 at 15 ft. apart—Standard Plums, Damsons, or red Cherries.
134 at 18 ft. apart—ditto.
108 at 20 ft. apart—Standard Apples, Pears, &c.
75 at 24 ft. apart—Ditto and Cherries.
48 at 30 ft. apart—Cherries where pastured underneath.
40 at 36 ft. apart—Cherries or Apples.
36 at 40 ft. apart—Cherries or strong Pears.

In plantations where there is both a top and bottom crop the standards may be placed at greater distances, noting that the Apples and Pears give a heavier shade than Plums.

Strawberries for market (about) at 1½ ft., 19,350; at 2 ft. 11,000 per acre.

LIST OF BEST PAYING MARKET FRUITS.

Apples.

Those marked * are recommended for orchard standards, the rest as plantation bushes or pyramids on paradise stocks.

† These are suitable for either purpose.

Dessert Apples to sell direct from the tree:

†Mr. Gladstone	July-August
†Beauty of Bath	,, ,,
Yellow Ingestre, or Summer Golden Pippin	September
†Devonshire Quarrenden	August
†Colonel Vaughan	Sept.-Oct.
Lady Sudeley	Aug.-Sept.
†Worcester Pearmain	September

Dessert Apples which require to be stored for a time before Marketing.

†Duchess Favourite (or Duchess of Gloucester).	Sept.-Oct.
†King of Pippins	Oct.-Jan.
†Cox's Orange Pippin	Nov.-Jan.
†Gascoyne's Scarlet Seedling	Nov.-Feb.
†Cox's Pomona	Oct.-Nov.
†Baumann's Winter Reinette	Dec.-Jan.
†Cockle's Pippin	Oct.-Nov.
†Allington Pippin	Nov.-Feb.
*Duke of Devonshire	March-May

Kitchen Apples which require storing before Marketing.

†Stone's, or Loddington	Aug.-Dec.
†Warner's King	November
†Lord Derby	Nov.-Dec.
*Queen Caroline (or Brown's Codlin)	Oct.-Dec.
*Tower of Glamis	Oct.-Dec.
*Wellington	Nov.-Mar.
*Winter Queening	Dec.-Feb.
†Bismarck	Oct.-Jan.
*Newton Wonder	Nov.-May
†Graham's Jubilee	Oct.-Mar.
*Bramley's Seedling	Dec.-April
*Golden Noble	Nov.-Dec.
Lane's Prince Albert	Nov.-April
*Hambledon Deux Ans	Mar.-May
Northern Greening	Jan.-Mar.
*Hambling's Seedling	Dec.-Mar.
*Alfriston	Nov.-Mar.

The following make grand trees and bear regularly when about 20 years old. A proportion should be placed in every grass orchard:—

Blenheim Orange	Nov.-Feb.
Kent Fillbasket	November
Striped Beefing	Nov.-Feb.
Mère de Ménage	Dec.-Jan.

Kitchen Apples to market direct from the tree.

†Early White Transparent	July-Aug.
*Early Julian	Aug.-Sept.
†Potts' Seedling	,, ,,
†Lord Grosvenor	,, ,,
†Lord Suffield	,, ,,
†Keswick Codlin	,, ,,
†Early Rivers'	,, ,,
†Domino	,, ,,
†Duchess of Oldenburg	,, ,,
†Ecklinville Seedling	Sept.-Oct.
†Grenadier Codling	,, ,,
Manks Codlin	,, ,,
†Golden Spire	Oct.-Dec.
Stirling Castle	Oct.-Nov.
†New Hawthornden	Nov.-Dec

The softer kinds of Apples are best for local sales as they bruise in transit to distant markets.

Pears.

Market Pears for Orchard Trees.

Hessle	September
Crawford, or Chalk	August
Jargonelle	,,
Williams' Bon Chrétien	September
Dr. Jules Guyot	,,
Pitmaston Duchess	Oct.-Nov.
Fertility	September
Beurré Bosc	Oct.-Nov.
Beurré Capiaumont	Sept.-Oct.
Catillac (for stewing)	Dec.-Mar.
Vicar of Winkfield	Dec.-Jan.

Pears as bush trees on quince stock.

Beacon (Rivers')	August
Williams' Bon Chrétien	September
Dr. Jules Guyot	September
Souvenir de Congrès	,,
Conference	October
Marguerite Marillat	,,
Louise Bonne of Jersey	,,
Pitmaston Duchess	Oct.-Nov.
Marie Louise d'Uccle	,, ,,
Beurré Clairgeau	,, ,,
Emile d'Heyst	,, ,,
Durondeau	,, ,,
Princess	,, ,,
Beurré Jean van Geert	November
Fondant de Thirriott	Nov.-Dec.
Doyenné du Comice	Nov.-Dec.

The list mentioned on Quince stock can also be grown as standards where the soil is suitable for Pears, and many other kinds grown in gardens can be introduced to meet any special local demand.

Plums.

Profitable Market Plums, either as standards in orchards or as half-standards and bushes in plantations.

Rivers' Early Prolific	July-Aug.
Czar (Rivers')	August
Heron (Rivers')	,,
Early Orleans and Prince of Wales	,,

(Only in places where they succeed.)

Belgian Purple	September
Belle de Louvain	,,
Black Diamond	,,
Curlew (Rivers')	,,
Jefferson's Gage	,,
Smith's Blue Prolific	,,
Bush Plum of Kent	,,
White Magnum Bonum	,,
Oullin's Golden Gage	August
Pond's Seedling	September
Victoria or Royal Dauphin	August
Sultan	,,
Early Transparent Gage	September
Wyedale	Oct.-Nov.
Monarch	Sept.-Oct.

Green Gages require a favourable situation. The best are—

Denniston's Gage	August
Early Transparent	September
Bryanston's Late Gage	,,
Late Transparent	,,
Jefferson's	,,
Old Green Gage	August
Cambridge Gage	September
Coe's Golden Drop (late)	Sept.-Oct.

Damsons.

Bradley's King. Hereford Prune. Frogmore (large).
Shropshire. Farleigh Prolific, or Crittenden.

The above Damsons are in fruit in September and October. Useful to shelter plantations on the exposed portions.

Cherries.

For Orchard Standards. (It is useless to plant less than an acre, as they do not pay to look after, scare birds, &c., on a less area.)

White and Amber Hearts.

Frogmore Early	Early
Elton Heart	Early
Kent Bigarreau	Medium
Napoleon Bigarreau	Late
Florence Bigarreau	Late
Emperor Francis	Late
Ludwig's Bigarreau	Early

Red Sorts.

Kentish—Medium. Flemish—Late. Morello—Late.

These can be used as standards or bushes.

Black Hearts.

Old Black Heart	Early
Black Eagle	Medium
Early Rivers'	First Early
Cluster or Caronne	Late
Werder's Black	Early
Waterloo	Medium
Black Tartarian	Late

Bush Fruits.

Currants—Black Naples, Baldwin's Black, Lee's Prolific (black), New Red Dutch, Raby Castle (red).

Raspberries.—Norwich Wonder, Bunyard's Superlative.

Gooseberries.—Lancashire Lad, Whinham's Industry, Red Warrington, Crown Bob, Keepsake, Rifleman.

Strawberries.—Royal Sovereign (early), Eleanor (late), Sir J. Paxton, President, and Laxton's Monarch, for local sale where they succeed. British Queen, Latest of All, and Dr. Hogg.

Mr. W. W. **Berry** said it had given him great pleasure to listen to this paper, and he might say that on this subject Mr. Bunyard was a prophet, not without honour, even in his own country, and the tenant farmers and landlords of Kent would always be grateful to him for the pioneer work he had done, for the advice he had given, and for the indomitable perseverance with which he had carried out his experiments over many years. The question of selection and packing of fruit was all-important. If he had 100 bushels of Apples from a tree, he would rather send 60 per cent. of the best, even if he had to throw away the other 40 per cent., but that was not at all necessary. If you picked out the very best, say 20 per cent., and packed them carefully in boxes, and then took a further 40 or 50 per cent. and packed them carefully in baskets, the returns from those two sections would be greater than from the whole 100 bushels marketed in a careless way; there would be a saving in carriage, in packing, and in other ways, and you would still have 30 to 40 per cent. of sound fruit to deal with, which you could dispose of to the "smasher," as the jam maker or cider maker was termed, at a fairly remunerative price. The same thing would apply to every kind of fruit. Another improvement was the steam cultivation of the land, not only in clearing old woodlands, but even on some of the best land in Kent, where he would not think of planting fruit trees without first thoroughly ploughing it and stirring the subsoil by steam. He recently broke up 14 acres, first ploughing it 9 to 12 inches deep by steam, and then following the burrows with a powerful steel implement to break up the soil underneath, being careful not to bring the subsoil to the top, but thoroughly breaking it up from 21 to 24 inches deep. The whole cost was not more than £2 per acre, if you hired the implements, and that was quite saved in the cost of planting. Artificial manure was another important point. Any farmer or fruit-grower could now be supplied with exactly the manure his land or crop required, and at a moderate price—either prepared bones, guano, or some of the phosphatic manures which had been referred to. One of the principal reasons for which he would recommend these things in preference to farm-yard manure, was the economy in application. Apart from the question of weeds, which was very serious, especially with manure from London, the expense of hauling 20 or 25 tons of farm-yard manure on to an acre of fruit land, getting it to the plantation, and then getting it out and in amongst the fruit bushes, was enormous; whereas if you had a suitably-prepared manure, with the proper quantity of potash, phosphates, and ammonia, it would all go in a one-horse cart and be carried out and sown broadcast on the land for three or four shillings. On a large scale that saving alone would make a good living for the fruit grower. With regard to foreign competition, there had been complaints for 25 years, but he thought the time had come to admit that the British fruit-grower was largely dependent on the foreign and colonial produce. In the old days a small quantity of fruit could be sold during the season; there was a shop here and there, and fruit was very dear, and when any unusually large quantity was sent to market, there was no one to distribute it. The season then only lasted three or four months, but now we had choice fruit all the year round. There were hundreds of shops, stores, and barrows—fruit was constantly put before the public, who were thus educated to the consumption of it, and insisted on having it, and thus the fruit-grower was far better off than he would have been without the foreign supplies. Reference had been made to the advantage of fruit and Hop growing in keeping labourers on the soil, which was a matter in which he took great interest. Things were looking up a little in every branch of agriculture, and they wanted more labourers than they did a few years ago, but they could not get them. They were often in great straits for men to do a little extra work which they knew would pay for doing. If you went away from the most prosperous districts, up into the hilly and barren parts, you would find only one in three, or one in six of the cottages occupied, but down where fruit and Hops were grown, and near the towns, there was an enormous dearth of labour. Instead of getting the assistance they used to have from the hill country, when there was any extra work, they could not now find it. In the villages where fruit-growing was carried on, there was work during the winter in pruning, manuring, digging, making new plantations, and so on, and he was paying £1,000 in wages now, where £100 was paid when he was young; and a house could not be got for love or money, though five miles away there were empty houses, because there was no work for the men to do. The fruit industry, therefore, was a grand thing, and it must be the same in many other counties. Fruit was becoming more and more popular every day; it had never been overdone yet, except in one year, 1886, when there was the biggest all-round crop of fruit ever known, and at that time the system of distribution had not developed in proportion. There might be a crop now three times as big as that, and it would all go to market, and the public would get the benefit of it. Enormous quantities of hothouse Grapes and Tomatos were now produced in this country. Mr. George Munro had given evidence before a Parliamentary Committee that in one year he had sold 700 tons of English-grown hothouse Grapes, in addition to those from the Channel Islands, and more than 1,000 tons of Tomatos.

Mr. J. **Assbee** said it was perfectly true, as the last speaker had said, that it was much better to keep inferior fruit out of the market altogether, than to put it in with the better class. He had repeatedly seen the sale of good Apples entirely spoiled because certain growers thought that they could get the better of the public by putting inferior ones in with them. There were two distinct classes of buyers: the man who bought the best and gave the best prices, and the man who bought the worst and only paid the lowest price. If you sent a mixed lot, the good man would not look at it, and consequently the lower-class buyer must have it, and he would only take it at his own price, and thus the grower often did not realise the cost of carriage, simply through carelessness and stupidity in packing his goods. Foreign competition in fruit was like foreign competition in everything else—cereals, hay, straw, eggs, butter, cheese, or poultry. Foreign fruit could not be kept out of the market, and it answered a very useful purpose. No doubt, it had stimulated the public taste for fruit; the more fruit people ate, the more they liked it. He had often wondered what our forefathers did for fruit; the people, generally, could have had hardly any. He could remember the time when the only thing you could get in winter was an Orange. The colonies were making great strides in this direction. Cape Colony had recently come to the fore, and within a decade would be sending fruit here which would be a surprise to many people. But it would come in when the English fruit was over. English Grapes were now just finished, and there would be a good opening for Grapes from the Cape. They had a few this year, but nothing to what would be sent in a year or two. It was the same with Apples, which were just beginning to arrive. Men had gone to the Cape from California, who were laying down hundreds of acres of land in fruit, and they would be sending thousands of packages before many years. But it would do no harm to English fruit, which was equal to anything in the world when well grown and properly sent to market.

Mr. George Gordon, V.M.H., said the course advocated by Mr. Berry of cultivating the land for fruit-growing by steam, was much better than what was described in the paper as the usual plan in Kent, namely, making holes, planting the trees, and keeping the surrounding space free from grass and weeds. It was much better to thoroughly pulverise the whole soil, so as to allow of the free growth of the roots. A cultivated orchard was preferable to a grass orchard, though it might not be necessary to do more than horse-hoe it once or twice in a season, so as to maintain a loose surface and prevent cracking. It was quite open to discussion whether even Cherry orchards should not be dealt with in this way, with crops and bush fruit between the trees. For some years he had been watching a Cherry orchard formed in this way. At first it was simply kept clean, and after a year or two it seemed quite at a standstill. Then the whole ground was trenched by hand, and the results were marvellous. The trees were planted eight years ago, and now they had heads of from 12 to 15 feet in diameter, and a few days since they were literally one mass of flowers. The question of packing was very important. The Normandy growers sent over large quantities of Plums packed in small boxes, holding from 6 to 12 lbs. The fruit came over in splendid condition, and the consumer could buy a box and take it home without any disturbance, and use the fruit as required. When Plums were sent to market in sieves, they got shaken considerably on the journey; then when the retailer got them up home, he turned them out on to the counter, shovelled them up into the scale, turned them out again into a paper-bag or basket, and by the time they reach the customer's house they had been so knocked about that unless used immediately they would be spoiled. He was sometimes told that the cost of boxes was prohibitive, but that could hardly be so, seeing that the Great Eastern Railway Company supplied boxes at from ½d. to 5d., the larger ones being big enough to hold 60 lbs. At any rate, the choicer kinds of fruit should be packed in this way. The renovation of old orchards was another point of importance, but they need not always be destroyed; he had seen orchards which seemed going to decay by proper care brought into a highly fruitful condition. He knew a gentleman who had an orchard consisting chiefly of Blenheim Orange which were said to be quite worn out, but by opening out a space between the rows, trenching, and supplying with farmyard and artificial manure, the trees took a new lease of life, and were now vigorous and fruitful.

Mr. E. D. Till thanked Sir Owen Burne for his remarks on Mr. Bunyard's reference to cider-making, and he remembered that when Mr. Radcliffe-Cooke read a paper on cider before the Society, the Chairman, Sir W. T. Thiselton-Dyer, was also sympathetic on the same subject. He would like to state his own experience. In 1895 there was an abnormal crop of Apples in Kent, and he urged the Technical Education Committee of the Kent County Council to make experiments with a view to instructing Kentish people as to cider-making. They declined, but as a glut crop is not too frequent, he urged two Scotchmen, farmers at Swanley, to get an expert from Hereford, erect a press, and as Apples were plentiful they made 5,000 gallons that season. In a "glut" year liquid storage is the best way of saving a crop and relieving a glutted market of fruit. Something like 40,000 gallons have been made at Swanley since that experiment, and it is commercially successful. There is no difficulty in selling it. It contains a low percentage of alcohol, 2½ and 3 per cent., and although cider from Kent fruit is different in character from that of the West country, it is not deficient in fine quality and flavour. As to keeping properties, he had been lately drinking good cider, made in 1895-1896 from local fruit. In the Weald of Kent they have lost the true art of cider-making; they put sugar in it, which is a great mistake. The French were paying more and more attention to the manufacture of cider. Mr. Radcliffe Cooke had said he knew nothing for agriculturists which offered such an unlimited and profitable field as cider-making. Mr. Cooke's advocacy of cider, and specially in the interests of his own county, Hereford, had led to his being called the "great De-*cider*-atum." He would like to say that Mr. Bunyard had not referred to poultry keeping in orchards, but he thought it was a valuable and profitable adjunct, and he might mention that the production of poultry and eggs now was equal in value to the value of our wheat crop, and still admitted of immense extension.

Mr. D. Louis said the washing of fruit trees with poisonous materials had been practised for the last 50 years, and it was constantly done in France and elsewhere, as well as in England. He did not know of any recorded case in which any accident had arisen therefrom. In connection with artificial manures, he was pleased to hear Mr. Berry's remarks; he had been advocating it in Kent for some years, both because it was more efficient, and on account of the saving in carriage. But these things were adjuncts, not substitutes entirely for farmyard manure, and it was necessary that the right material should be applied at the right time and in the right way, otherwise it might be injurious. He lately had an interesting example of that on some thin soil in South Kent, just over the chalk. It had been dressed persistently with superphosphate, with very bad results; but when he saw the character of the vegetation he recognised that the soil was acid, and advised the use of basic phosphate. That was put down, and the result was an entire change in the appearance of the place.

Mr. Bunyard, in reply, said he strongly recommended that all new orchards should be raised on arable land, except for Cherries, for which he could not advise that course. It was true they did well under it, but if there came a severe frost—anything below 24° below freezing—the trees would be completely spoiled; and not only that, but where the ground was very well manured, the Cherry-trees ran away altogether. He was called in to advise at a place in Gloucestershire, where they had manured the trees highly, and they made enormous growth, 6 feet in a year, but when they got a hard frost, the trees were completely spoiled. To farm a good Cherry orchard, you must let it go on very slowly. With regard to renovation, if you had good sorts, by all means go in for it, but it was useless to take the trouble if the sort of fruit was not good enough to pay for it. With regard to spraying, he had to be very careful what he said. If he advised people to do this, it might be done carelessly, and very grave results might ensue. He knew of a case where a man washed his Apple trees with London Purple, and some of it fell on the Gooseberries, resulting in a vast amount of illness. It was a good thing to use where people were sufficiently careful. A man once said to him, "I never tell people to do it, but I do it myself;" and that was sometimes his position.

The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.					Rainfall.			Bright Sun.	
	Above (+) or below (−) the Mean for the week ending May 20.	Accumulated.				More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.					
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	2 −	29	3	− 7	− 11	16 +	93	20·6	15	27
1	3 −	37	4	− 37	+ 8	15 +	80	14·7	23	30
2	2 +	61	0	+ 88	− 95	4 +	81	9·7	21	28
3	3 +	82	0	+ 128	− 100	8 +	72	8·5	34	37
4	1 +	72	0	+ 88	− 145	4 +	73	10·8	29	33
5	2 +	82	0	+ 147	− 180	4 +	64	9·6	31	39
6	2 −	41	0	− 2	− 50	18 +	91	21·7	28	29
7	0 aver	62	0	+ 101	− 142	5 +	85	14·0	26	33
8	1 −	64	0	+ 125	− 120	9 +	81	18·1	34	37
9	2 −	45	0	+ 24	− 69	9 +	98	15·4	32	32
10	2 −	52	0	+ 97	− 52	13 +	83	18·5	37	36
*	1 +	81	0	+ 288	− 67	7 +	76	12·2	41	43

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S.

Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending May 20, is furnished from the Meteorological Office:—

"The *weather* during this period was very unsettled and rainy generally, especially in the west and north. Thunderstorms were experienced in many parts of the Kingdom soon after the commencement of the week, and, again in some districts later on.

"The *temperature* was rather below the mean in Scotland, Ireland, and the south-west of England, and just equal to the normal in 'England, N.W.,' but in all the other English districts it was a little above it. The highest of the maxima occurred on the 18th over England, and on somewhat irregular dates in Ireland and Scotland; they ranged from 72° in 'England, S.' (in London), and 71° in 'England, E.,' to 62° over Ireland, and 60° over Scotland. The lowest of the minima, which were registered on different days in the various districts, ranged from 31° in 'Scotland, E.,' and 33° in 'Scotland, W.' and over Ireland, to 43° in 'England, S.,' and to in the 'Channel Islands.'

"The *rainfall* exceeded the mean in all districts. The aggregate fall was very heavy generally, varying from about twice as much as the normal over northern, central, and southern England, to about three times as much in most western and northern districts and in 'England, E.,' and to four times as much in the west and east of Scotland.

"The *bright sunshine* was deficient in all parts of the Kingdom. The percentage of the possible duration ranged from 41° in the 'Channel Islands,' 37 in 'Ireland, S.,' and 34 in 'England, E. and S.W.,' to 21 in 'England, N.E.,' and 15 in 'Scotland, N.'

MARKETS.

COVENT GARDEN, MAY 25.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Cut Flowers, &c.—Average Wholesale Prices.

	s. d. s. d.
Anemones, dozen bunches	1 6 —
Arum Lilies, dozen blooms	2 0- 4 0
Asparagus "Fern," bunch	2 0- 3 0
Azalea, white, 12 bunches	3 0- 4 0
Azalea mollis, per dozen bunches ...	6 0- 9 0
Bouvardias, per bun.	0 4- 0 6
Camellias, per doz. blooms	1 6- 2 0
Carnations, per doz. blooms	1 6- 3 0
Daffodils, per dozen bunches	2 6- 4 0
Eucharis, per dozen	2 0- 3 0
Gardenias, per doz.	1 0- 3 0
Hyacinths, Roman, per doz. bunches	4 0- 6 0
Jonquils, per dozen bunches	1 0- 2 0
Lilium longiflorum, per dozen ...	4 0- 6 0
Lily of the Valley, dozen bunches ...	6 0-10 0
Marguerites, p. doz. bunches	3 0- 4 0
Maidenhair Fern, per doz. bunches	6 0- 9 0
Mignonette, per dozen bunches ...	2 0- 3 0
Narcissus, White, dozen bunches ...	1 6- 2 0
Orchids, per dozen blooms	6 0-12 0
Pæonies, doz. bun.	6 0-12 0
Pelargoniums, doz. bunches	4 0- 6 0
— scarlet, doz. bun.	6 0- 8 0
Roses (indoor), per dozen	1 6- 2 0
— Pink, per dozen	4 0- 6 0
— Tea, white, per dozen	2 0- 3 0
— Perle, per doz.	1 0- 2 0
— Safrano, p. doz.	1 6- 2 0
Smilax, per bunch	3 0- 5 0
Stock, doz. bunches	2 0- 3 0
Sweet Peas, dozen bunches	6 0- 8 0
Tuberoses, 12 blms.	0 8- 1 0
Tulips, per dozen...	0 6- 1 3

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.
Adiantums, p. doz.	5 0- 7 0
Aspidistras, p. doz.	18 0-36 0
— specimen, each	5 0-10 0
Bouvardias, p. doz.	18 0-42 0
Calceolaria, p. doz.	5 0- 9 0
Euonymus, various, per dozen ...	6 0-18 0
Ferns, in variety, per dozen ...	4 0-12 0
— small, per 100 .	4 0- 6 0
Ficus elastica, each	1 0- 5 0
Foliage plants, var., each	1 0- 5 0
Fuchsias, per dozen	6 0-10 0
Hydrangeas, p. doz.	6 0-10 0
— paniculata, doz.	18 0-24 0
Lycopodiums, doz.	3 0- 4 0
Marguerite Daisy, per dozen ...	6 0- 8 0
Mignonette, p. doz.	4 0- 8 0
Palms, various, ea.	1 0-15 0
— specimens, ea.	21 0-63 0
Pelargoniums, var.,	6 0 10 0
— Zonals, per doz	6 0- 8 0
Roses, per dozen ...	6 0- 9 0
Spiræas, per dozen	4 0- 6 0

Fruit.—Average Wholesale Prices.

	s. d. s. d.
Apples, Tasmanian and Victorian, Ribstons, Pearmains, New York Pippin, Sturmer, Prince Bismarck, &c., per case ..	9 0-15 0
— Nova Scotian, Nonpareils, p. barrel ...	18 0-23 0
Apricots, box 15 × 20 × 24 ...	1 6- 2 3
Bananas, per bunch	6 0-10 0
Cherries, sieve ...	8 0-10 0
— peck	5 0- 5 6
— box	1 0- 1 6
Figs, per dozen ...	2 0- 6 0
Gooseberries, sieve	8 0-10 0
— peck	5 0 —
Grapes, Belgian A., per lb., new ...	1 3- 2 0
Grapes, English, Hambros, p. lb.	1 6- 2 6
— Channel Islands Hambros, p. lb.	2 0 —
— Muscats p. lb.	4 0- 5 0
Lemons, per case...	9 0-30 0
Lychees, Chinese, packet, 1 lb. ...	1 3- 1 4
Melons, each ..	1 3- 2 6
Oranges, Valencia, 420	18 0-20 0
— Murcia, cases of 150 or 200 ...	8 0- 8 6
— Blood, 150 ...	9 6 —
Peaches, per dozen	6 0-30 0
Pears, Australian, cases	4 0- 8 0
Pines, St. Michaels, each	3 6- 6 0
Strawberries, p. lb.	2 6- 4 0
— Seconds ..	1 0- 1 6
— French, in baskets, about 4 lb.	1 0- 2 3

Potatos.

Bruce, Saxon, and Main Crop, 80s. to 100s.; Up-to-Date, 95s. to 105s.; Dunbar Main Crop, 100s. to 110s. *John Bath, 32 and 34, Wellington Street, Covent Garden.*

Remarks.—In last report Peaches should have read 6s. to 24s. per doz. (not 42s.). Radishes and Spinach are now coming fast, and both are very much down in price. Pines are rather short supply, and nothing very fine. Apricots vary in price, the larger the fruit the higher the price. The foreign Cherries to-day were very good. Asparagus is plentiful, and in great variety, English and foreign, and prices are low.

Vegetables.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 6 —	Mint, natural, per dozen bunches, according to size of bunches	2 0– 4 0
— Jerusalem, per sieve	1 6 —	Mushrooms, house, per lb.	0 6– 0 9
Asparagus, Giant, per bundle	4 0 —	Onions, Egyptian, cwt. bag	4 6– 5 6
Toulouse	1 3– 1 6	— New, bunches.	2 6– 3 0
— Sprue	0 6 —	— picklers, sieve	3 0 —
— Eng., natural, per bundle	1 0– 3 6	Parsley, doz. bun.	2 0– 2 6
— Various others	0 9– 1 0	— sieve	1 6 —
Beans, Dwfs., Channel Islands, lb.	0 9–0 10	Peas, Channel Islands, Frame Telephone, lb.	0 10–1 0
— — English, lb.	1 0 —	— French flats	4 0– 7 0
— — Longpods, in flats	4 6 —	Potatos, Bruce, Saxon, Up-to-Date, &c., per ton	80 0–110 0
Beetroots, per doz.	0 6– 0 9	— New Jersey Kidneys, per cwt.	20 0–22 0
— bushel	2 0 —	— — Teneriffe, per cwt.	14 0–17 0
Broccoli, dozen	1 0– 2 6	— Lisbon, per box	5 0– 5 6
— crates	6 0–14 0	Radishes, Round, breakfast, per dozen bunches	0 4– 0 8
Cabbage, tally	3 6– 4 0	— Long, per doz. bunches	0 4– 0 6
— per bushel	1 6 —	Rhubarb natural, per dozen	1 6– 2 6
— dozen	0 9– 1 0	Salad, small, punnets, per dozen	1 3 —
Carrots, new French, per bunch	0 6– 0 8	Spinach, English, per bushel	1 0– 1 6
— washed, in bags	5 6 —	Tomatos, new English, per lb.	0 6– 0 8
— Surrey, bunches, doz.	3 0 —	— Channel Islands, p. lb.	0 4– 0 6
Celery, New, per bundle	1 6 —	— Canary, boxes	5 0 —
Cress, doz. punnets	1 6 —	Turnips, New French, per bunch	0 4– 0 8
Cucumbers, per doz.	2 0– 3 0	Watercress, p. doz. bunches	0 4– 0 6
Endive, French, per dozen	1 6– 1 9		
Garlic, per lb.	0 3 —		
Horseradish, New English, bundle	2 0 2 6		
— — loose per doz., fine	1 6 —		
— Foreign, per bundle	1 0– 1 2		
Leeks, per dozen bunches	1 0– 1 6		
Lettuce, Cos, dozen	3 6– 4 6		
— Cabbage, dozen	1 3– 1 6		

SEEDS.

London: *May* 24.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., describe to-day's market as quite of a holiday character, with scarcely any business passing. Quotations all round are consequently without any alteration. Small orders still drop in for Tares Rye continues scarce. Canary-seed, with more doing, tends upwards in value. Hemp-seed keeps very firm. Mustard and Rape are steady. Peas and Haricots command full rates.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending May 20, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	48 1	25 3	– 22 10
Barley	26 0	23 11	– 2 1
Oats	21 3	17 10	– 3 5

FRUIT AND VEGETABLES.

Glasgow: *May* 24.—The following are the averages of the prices recorded since our last report:—Apples, Canadian Spies, 14*s*. to 18*s*. per barrel; Western States' Russets, 18*s*. to 20*s*. do.; Oranges, 6*d*. to 1*s*. per dozen; Grapes, home, 2*s*. to 4*s*. 6*d*. per lb.; Tomatos, Guernsey, 4*d*. to 8*d*. per lb.; do., Scotch, 5*d*. to 8*d*. do.; Cabbages, Spring, 6*d*. to 1*s*. per dozen; Broccoli, Edinburgh and Irish, 2*s*. to 2*s*. 6*d* per dozen; Herbs, assorted, 1*d*. to 2*d*. per bunch; Leeks, 1*s*. to 3*s*. per dozen bunches; Mint, green, 6*d*. per bunch; Onions, 4*s*. 6*d*. to 5*s*. per cwt.; Parsley, 1*s*. 6*d*. to 2*s*. per stone; Carrots, round, new, 1*s*. per bunch, and 4*s*. 6*d*. to 7*s*. per cwt. (old); Cucumbers, 4*d*. to 5*d*. each; Lettuces, round, 1*s*. 3*d*. to 1*s*. 6*d*. per dozen; Horseradish, 1*s*. 6*d*. to 2*s*. per bundle; Mushrooms, 1*s*. to 1*s*. 3*d*. per lb.; Beetroots, 6*d*. to 7*d*. per dozen; Mustard and Cress, 3*d*. per punnet; Spinach, 2*s*. to 4*s*. per stone; Turnips, French, new, 1*s*. to 1*s*. 3*d*. per bunch; Swedes, 2*s*. to 2*s*. 6*d*. per bag; Greens, 9*s*. to 6*s*. per 10 dozen.

Liverpool: *May* 24. — *Wholesale Vegetable Market.* — Potatos, per cwt., Main Crop, 3*s*. 9*d*. to 4*s*. 6*d*.; Bruce, 2*s*. 10*d*. to 3*s*. 6*d*.; Champion, 2*s*. 9*d*. to 3*s*. 3*d*.; Turnips, Swedes, 3*s*. 6*d*. do.; Carrots, 5*s*. 6*d*. to 6*s*. 6*d*. do.; Parsley, 6*d*. to 8*d*. per dozen bunches; Onions, foreign, 4*s*. to 5*s*. per cwt.; Cucumbers, 1*s*. 3*d*. to 3*s*. per dozen; Broccoli, 10*d*. to 2*s*. per dozen; Cut Cabbages, 6*d*. to 10*d*. do. *St. John's.*—Potatos, 1*s*. to 1*s*. 2*d*. per peck; do., new, 2*d*. to 4*d*. per lb.; Grapes, home, 2*s*. 6*d*. to 4*s*. do.; Pines, English, 4*s*. to 6*s*. each; Strawberries, 4*s*. per lb.; Gooseberries, 6*d*. per quart; Peas, 3*d*. per lb.; Cherries, 6*d*. to 1*s*. do.; Cob Nuts, 8*d*. do.; Apricots, 1*s*. per dozen; Asparagus, 2*s*. to 4*s*. per 100; do., bundle, 1*s*. 6*d*. to 3*s*.; Cucumbers, 3*d*. to 4*d*. each; Mushrooms, 1*s*. 3*d*. per pound and basket. *Birkenhead.*—Potatos, 1*s*. to 1*s*. 2*d*. per peck; do., new, 3*d*. to 4*d*. per lb.; Peas, 5*d*. to 8*d*. do.; Asparagus, 2*s*. to 4*s*. per 100; Cucumbers, 2*d*. to 4*d*. each; Strawberries, 8*d*. to 2*s*. per lb.; Cherries, 6*d*. to 8*d*. do.; Apricots, 1*s*. per dozen; Gooseberries, 6*d*. per lb.; Grapes, home, 3*s*. 6*d*. to 4*s*. 6*d*. do.; Mushrooms, 1*s*. to 1*s*. 6*d*. do.

CATALOGUES RECEIVED.

E. A. White. Ltd., Paddock Wood, Kent—"Abol" Insecticides and Syringes.

De Graaf Brothers Ltd., Leiden, Holland—Bulbs and Plants.

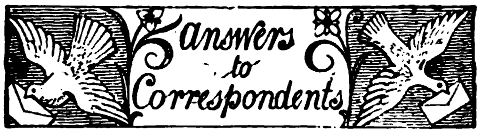
L. Boehmer & Co., 5 and 28, Bluff, Yokohama—Lilies and other Bulbs, Plants, Conifers, &c.

Tilley Brothers, Brighton—Bedding-plants, &c.

GARDENING APPOINTMENTS.

Mr. A. Baker, late Foreman at Highfield Gardens, Shoreham, Kent, as Gardener to H. H. Hett, Esq., Hapstead House, Ardingly, Sussex.

Mr. T. Randall, for the last nine years Head Gardener at Holme Lacy, Herefordshire, as Head Gardener to A. Boughton Knight, Esq., Downton Castle, near Ludlow.



Answers to Correspondents

Address: *A Twenty Years' Reader of the Gardeners' Chronicle.* We think that the person whose address you require is to be found at Green Lanes, Stoke Newington, London, N.—*W. H. K.* The address asked for is Mr. B. Wynne, 1, Danes Inn, Strand, London, W.C.

Adhesive Shading: *Veritas.* The horticultural sundriesmen keep several such preparations of about equal goodness.

Cucumber Plants Failing: *S. B.* The roots are infested with eel-worms against which nothing can be done to rid to plants of them. The worms are introduced with the soil, which, owing to not having been stacked for a year or two, and kept clear of herbage, swarms with them. Clear out the soil and plants, and start anew. Bake the soil before using it.

Cucumbers Yellow, and Decaying at the Ends of the Fruits: *A. C.* In the absence of information in regard to treatment, we should attribute the decay to lack of bottom heat. There are no signs of eel-worms on the roots sent.

Double Mushroom: *W. S.* A common occurrence.

Evergreens for Planting on a Steep, Dry, Sandy Bank: *E. P.* You might make your choice of any of the following:—Furze, double or single-flowered; Common Broom, Tamarisk, Mahonia aquifolia, Common Juniper, also Juniperus Sabina and J. tamariscifolia; Abies Clanbrassiliensis, Scots and Black Austrian Pine, Pinus Pinea, Butchers' Broom, Olearia Haasti. At the bottom of the bank, the Periwinkles, Ivies, and Euonymus would succeed.

Grapes Diseased: *St. Clair.* The berries are infected by Glæosporium læticolor—the "Spot" fungus. Cut off and burn every affected berry, and then apply sulphur by various methods, or use sulphide of potassium, half an ounce in a gallon of water. The bunches would have to be syringed with clear water before eating them.

Ivy-leaved Pelargoniums: *C. P. & Co.* The leaves were pierced by aphis, whilst very young, which has given them a crippled appearance. No fungus.

Lily Flower Buds: *A. C.* The yellowing is due to a check, but how caused we are unable to say.

Melon and Cucumber Roots: *K. M. W. and W. G. S.* The roots are badly attacked with eel-worm. Turn out the soil and get fresh loam, taking the precaution to bake it before using.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. T. L.* 1, Dendrobium Bensoniæ; 2, Dendrobium Parishi.—*R. K.* A very fine variety of Odontoglossum triumphans, of that uncommon type having a white ground colour to the petals and lip.—*J. K., Melton.* 1, Dendrobium aggregatum; 2, D. Dalhousieanum; 3, D. chrysotoxum; 4, Saccolabium ampullaceum; 5, Clematis; 6, Sprekelia formosissima; 7, Davallia dissecta Mariesii; 8, D. Mooreana; 9, Adiantum trapeziforme; 10, A. formosum; 11, Gymnogramma ochracea; 12, Selaginella viticulosa. Another time send six only. A contribution to the Gardeners' Orphan Fund would be welcome.—*E. S. J. T.* Miltonia flavescens, formerly called Cyrtochilum stellatum.—*J. M.* 1, Nothochlæna trichomanoides; 2, Pellea (Platyloma) flexuosa; 3, Pteris hastata; 4, Davallia tenuifolia stricta; 5, Polystichum angulare; 6, Ixia crateroides. — *C. G.* 1, Lonicera tatarica; 2, Diervilla florida *syn.* Weigela rosea.—*J. T. L.* Savin, Juniperus Sabina var.—*M. Neath.* 1, Dendrobium Hildebrandi; 2, D. Devonianum; 3, D. chrysotoxum.—*G. E. S.* Ceanothus rigidus. —*F. C.* Claytonia perfoliata.—*Subscriber* (*Brown*). Prunus Padus, the Bird Cherry.

Odontoglossum cirrosum: *M. Neath.* The flower-spikes when produced in the winter, and under conditions not favourable to the quick development of the flowers, often go in the manner shown in the specimen sent. The plants are not at fault. Probably, a rather cooler temperature would be beneficial.

Orchid Collector: *D. L.* The course most likely to be attended with success would be to offer your services, together with testimonials as to knowledge and ability, &c., to some Orchid-importing firm in this country or in Belgium. This might be done by means of advertisement or letter.

Spanish Iris and Jonquils not Flowering: *Dun, Leamington.* Assuming that the bulbs in each case are healthy, their failure to bloom is probably due to immature growth, untimely loss of foliage, enormous reproduction, or to deep planting. Both require a well-drained soil, of good depth, and an open, sunny situation. We would advise the lifting of the bulbs as soon as, in the case of the Jonquills the foliage turns brown, and the Iris in the middle of the month of August. They may have grown so rapidly, and formed such large masses of bulbs, that the soil around them is practically exhausted, and growth is in consequence much weakened. Having prepared new stations for them, replant the stronger bulbs at 3 to 4 inches apart and 3 inches deep, in colonies of thirty to fifty, or in beds, the ground being made quite firm both before and after planting. The weaker bulbs may be put in nursery lines to grow strong before planting them in the beds or borders.

Strawberry-flowers Failing to Set: *J. W.* You will do well to acquire a fresh stock of plants. Strawberries occasionally evidence a tendency to revert to a diœcious condition, and fertilisation is then much less easy or certain than in the case of plants bearing hermaphrodite flowers.

Tomatos: *G. T. R.* The fruits are attacked by a fungus (Cladosporium locopersici). Preventive methods such as syringings with sulphide of potassium or Bordeaux Mixture, when adopted early in the season are generally productive of good, but if your plants are now bearing a crop, all you can do will be to remove, at once, every fruit that shows evidence of disease.

Vine: *D. B.* The Vine-leaves sent are affected with the malady called "Browning," *Brunissure* of the French. There is no known cure, and only timely prevention is of any use, which is found in occasionally syringing the leaves with the Bordeaux Mixture (see answer to correspondent last week), or by using sulphide of potassium, at the rate of half an ounce in a gallon of water.

Communications Received.—M. G. G.—A. P.—W. T.—F. B. —C. T. D.—R. D.—M. M., Geneva—A. V.—B. W.—F. W. S. —W. B.—G. B.—H. V.—F. J. H.—G. J. I.—F. B., Jersey—N. E. B.—J. H. & Son, Edinburgh—W. H. F., Exeter.—F. S. & Co.—H. E.—Kelway & Son—D. T. F.—A. D.—A. P.—A. C. F.—C. T. D.—E. C.—G. M.—R. P. B.—S. A. —F. R.—E. Benary.—A. S. W.—B. K.—R. C., York—G. S.—H. S.—Mallon.

Specimens and Photographs Received with Thanks—G. C. D.—C. T. D.—W. B. H., Cork—A. B.

Important to Advertisers.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libra*

THE
Gardeners' Chronicle
No. 649.—*SATURDAY, JUNE* 3, 1899.

PREPARING FOR THE SHOW.

THE work entailed in preparing for a great show is very considerable, a great many subjects having to be selected for growing on as much as a year previous to the exhibition. Having selected the most promising plants, the work and worry begin, and there must be no relaxation of care and watchfulness until the plants are finally arranged in the show tents.

Preparing.—The primary work is to get the flowering plants well set with buds, and to work up such hardy plants as Deutzias, Philadelphus, Azaleas, and other subjects of a like nature. To have them in flower to a day is a work requiring great care and judgment, and quite 20 per cent. of those selected to be grown have to be discarded; some being too early, others too late, so much depending on the season and the amount of sunshine the plants receive. These subjects have to be moved from one house to another, either to retard them if too forward, or to push them on should they require it. Again, some kinds of plants come into bloom much more rapidly than others, and consequently several glass-houses with a variety of temperatures are necessary to get all in perfection at the same time.

To grow and show a collection of Cacti is a feat of skill in itself, as most horticulturists know. To have a large number of plants in bloom on a certain date, means a great amount of skilful manipulation; if the flowers open too soon or if they are a day too late, a year's labour in many cases is lost. The same may be said of other flowering subjects, such as Gloxinias, Lilies, and many others.

Packing.—The work of preparing and growing the plants is but one item of the expense involved in exhibiting plants, for these would be of no use if great care were not exercised in packing them so as to travel safely to the show. The packing in itself is a special business, for this must not only be done with expedition, but great care must also be exercised. Choice Orchids require, in some instances, that each flower must be carefully tied up in paper and protected with cotton-wool and others with long sprays must have supports formed of cotton-wool and light sticks, and the whole plant afterwards enveloped in paper so that no particle of dust may settle upon the flower to mar its pristine beauty. The same remarks apply to other flowers that are easily bruised. Caladiums and other fine foliaged plants with tender leaves require quite as much, if not more, care and labour in packing, as each leaf must be supported and carefully protected from injury whilst in transit, as the least bruise or puncture of the leaves spoils the beauty of the plant.

Hardy plants that have been forced into flower, and those grown in the open, are placed in baskets, which look best when covered with green baize; and each individual plant must be carefully tied, to prevent the flowers rubbing each other, and some plants that have delicate flowers also require wrapping in paper. After each plant has been carefully tied and papered, they are then packed in covered vans with light springs, specially constructed for the purpose, some of which are heated when the plants have to travel far and the weather is cold.

Setting-up.—The work of selection, growing, and packing being completed, there is still a lot of hard work to do; each plant has to be unloaded, and very often carried a long distance to the place allotted for it in the exhibition. The plants have to be untied, and then placed in their various groups, which occupies a considerable amount of time, and requires a great amount of patience; for it often happens that when an exhibitor has set up his group it does not please him, and certain plants have to change places—some have to be raised, and others lowered, and so on, until the appearance of the whole is satisfactory.

The setting up of the plants being finished, there is still more work to do, for the packing material must be gathered up and stowed away out of sight, and all the litter made in unpacking must be cleaned up before the time for judging the exhibits arrives.

Removal.—We scarcely need to remind the reader that all the plants brought to a show ought to be repacked with as much care for their removal as was bestowed on them when being prepared for exhibition.

To bring together the innumerable subjects to form so grand a display as that seen in the Temple Gardens annually, gives employment to quite an army of workers, not only during the time of the show, but also year in and year out. The amount of thought and skill employed is incalculable, and the amount of money spent annually, we are persuaded, would amount to a goodly fortune.

[Our supplementary illustration, showing the plants in their travelling costume, was taken in Messrs. Veitch's Nursery at Combe Wood. Ed.]

ORCHID NOTES AND GLEANINGS.

CŒLOGYNE PANDURATA.

Although upwards of fifty years have elapsed since this species was first flowered in this country, it is still rarely seen, and this is the more singular because it is one of the most striking of Cœlogynes. Its habit is of a rambling nature, and for this reason the plant is best grown on a raft. The colour of the sepals and petals is bright green, and the lip, as indicated by its specific name, resembles in form a violin, and is furnished with black ridges and dots. It is a native of Sarawak in Borneo, and revels under cultivation in a hot moist atmosphere. There is a plant here at the present time bearing a spike with twelve flowers. *J. G., Botanic Gardens, Liverpool.*

Restrepia trichoglossa, *Lehmann.*

A plant of this graceful species, of small growth, is flowering in Sir Trevor Lawrence's collection at Burford, and in the Royal Botanic Gardens, Glasnevin, Dublin. Mr. Moore, the director of the Dublin garden, kindly sends a specimen for our inspection. The plant in its growth and in its flowers suggests a miniature, tufted, profuse-flowering form of R. antennifera, but an examination showed it to be distinct from that species and from all others previously recorded. The upper sepal is lanceolate, and prolonged into a tail, bearing an oblong yellow-coloured knob at the end, and the other portion is white with purple-coloured markings. The broader connate lower sepals are yellowish-white, densely spotted with crimson-purple. The petals resemble the upper sepal in form and colour, but are smaller, and the singular-looking lip, which is pressed down in the lower sepals, is of a yellow tint, spotted with crimson papillæ, and bearing on each side at the base a stout, short white, hair-like process.

Phaius × Cooksoniæ.

Some flowers of this pretty variety, sent by Mr. Wm. Murray, gr. to Norman C. Cookson, Esq. Oakwood, Wylam-on-Tyne, show that this cross between P. grandifolius and P. Humbloti (which took the Royal Horticultural Society's 1st prize for the best hybrid Orchid flowering in 1895) is worthy to be placed with the best of them. The sepals and petals are broad, and of a nankeen-yellow tint, the lips being coppery-yellow, changing to rose-colour at the tips, and the reverse is also rose-coloured. The nicely-rounded lip is of a bright yellow tint at the base with red stripes, the handsome front lobe being of a bright deep rose. These hybrid Phaius are very easy to cultivate, and very useful for decorating the dwelling-house; a stay in which does them more good than harm, as is Mr. Murray's opinion. Other varieties of Phaius, with flowers larger than P. × Cooksoniæ, have been raised at Oakwood.

Odontoglossum × crispo-Halli.

Some flowers of this beautiful variety, itself a cross between O. Halli leucoglossum ♀ and the finely-blotched O. crispum Cooksoni, and raised by N. C. Cookson, Esq., Wylam, and now sent by him, show improvement upon those first exhibited at the Royal Horticultural Society, November 24, 1896, beautiful though those were which obtained a First-class Certificate. As yet, at least, the production of varieties of Odontoglossum has not been an easy matter, and Mr. Cookson is justly proud of his achievement in this instance. The flowers may be said to have the size and shape of a good O. Halli, but with broader sepals and petals. The crest resembles that of O. Halli, but the processes are less prominent. The marking of the nearly white ground is rather more like that of O. crispum Cooksoni, except that some of the blotches are larger. The sepals and petals are white, with a faint yellow tinge, two-thirds of the surface of the sepals being occupied by three or four red-brown blotches; and the petals, to the extent of half their area, are covered by several smaller blotches of the same hue. The fringed lip is white, and the crest yellow and red, with one large red-brown blotch in the middle, and an even array of small ones, of the same tint up each side. The column is white on the upper side; the toothed wings and under surface are of a red tint. The spotting shows through at the back of the flower, rendering it striking in every aspect.

NATURAL GARDENING.

An interesting and instructive address on the above subject was given by Dr. Lionel Beale, F.R.S., in connection with the Weybridge Gardeners' Mutual Improvement Society, on the 10th ult. Dr. Beale, in his opening remarks, dwelt at some length on the pleasure which may be derived from this kind of gardening, by the judicious planting of our more common and hardy flowers, and pointed out how, with taste and forethought, a garden of this kind might be made an object of interest in some feature or other nearly the whole year through. Gardening, like many other things, he remarked, could never be learnt from books alone; and satisfactory results were only attainable by devotion and study of the different natures, positions, and requirements of the various kinds of plants which might be employed in gardens, and even those found on commons or in woods.

Such plants were, for the most part, inexpensive—a primary consideration to those who were unable to devote a large sum of money or much time to the management of their gardens, and where a love of our more common flowers was cherished, as much enjoyment might be derived from them as from the more costly exotics of our glasshouses.

In defence of the soil of Weybridge and neighbouring districts much might be said; and although it was regarded as being perhaps the poorest in England, there were, nevertheless, multitudes of beautiful plants which would thrive and adapt themselves to their surroundings. It must be admitted, that its light sandy, porous nature, and the influence of the gravelly subsoil, were the great difficulties we had to contend with; but by taking every advantage of any depression, and making others near the plants, and by carefully conducting all superfluous water, by means of channels or pipes, to those spots, even moisture-loving plants might be grown, whilst the more elevated parts and banks might be reserved for those which would bear drier situations.

Circumstances often produced what were termed "faddists;" but in defence of successful fads, he related his numerous attempts and failures experienced in the cultivation of vegetables and fruit, but which had to be given up in favour of shrubs, herbaceous plants, and bulbs.

With a touch of that love of nature with which the whole address was replete, he strongly advocated the culture of various kinds of fruits for the benefit of the birds, which, he added, should be cared for and cherished as much as the flowers of a garden.

Next came a list of plants, which he had found would adapt themselves readily, and thrive remarkably in this poor soil with but very little attention. Amongst a number of things which he had brought was a fine healthy frond of Chamærops excelsa, nearly 4 feet across, and grown out of doors for twelve years; branches of Camellias in flower; Skimmia japonica, with flowers and berries, the luxuriant growth of all denoting their perfect development, growth, and health. Most of the Japanese Maples thrive, and in proof of this he had brought several varieties, and also a branch of Sciadopitys verticillata (Japanese Umbrella Pine), and some rooted rhizomes of Bamboos, to illustrate the facility with which they might be propagated and grown in dry sandy soils. All the British Ferns would thrive on shady sides of banks, and most of the N. American species, especially Polystichum acrosticoides, Adiantum pedatum, Onoclea sensibilis, Struthiopteris germanica and virginica. Osmundas, and many others, were as much at home as in more favourable moist places prepared especially for them. For covering the lower parts of the trunks of the very tall Pine-trees there were numerous climbers, as Roses, Clematises, Ivies, Kerria japonica, and even Rhododendrons might be trained up them.

In conclusion, he would impress upon all who wished to improve their gardens that there was not a single spot which might not be made attractive and of interest, however bad might be the soil, or unfavourable the aspect, if the right choice of plants be made.

PLANT NOTES.

PRIMULA FLORIBUNDA AND P. VERTICILLATA.

THESE are two most useful Primulas for winter and spring flowering in the greenhouse. Although they are not so large and showy as varieties of P. sinensis, they deserve to be much more widely cultivated than at present. P. floribunda is a Himalayan species, and bears rather small yellow flowers, arranged in whorls, on scapes 6 or 8 inches high. Seeds should be sown early in March, in pans filled with light soil, and placed in a warm pit. As soon as the seedlings are sufficiently large to be handled, remove them into 3-inch pots, putting three plants in each.

A few weeks later the plants may be placed in a cool frame, to remain there during the summer months. Give to each plant plenty of room, keep them close to the glass, and ventilate as freely as circumstances permit. A light shading will be necessary during the hottest part of the day. The final potting into 5-inch pots should be done when the plants have made a moderate number of roots, and without disturbing the three plants, which should be potted-up together. When they have become well established, the plants will need frequent root waterings, and all flower-buds that show during the summer must be removed. At the end of October, place the plants in the greenhouse, and they will then soon commence to bloom, and remain bright for a long time.

P. verticillata, a native of Abyssinia, is an old plant, producing light yellow flowers, on scapes, in two or three bracteate whorls. The leaves are covered with a white, mealy powder, and enhance the beauty of the plant. P. verticillata may be grown in the same way as P. floribunda, so far as the summer treatment is concerned. It is, however, a more delicate plant, and it is important to obtain sturdy plants, that are likely to pass well through the winter. In October they should be brought into a warm, light, and airy pit, and placed on inverted flower-pots. Careful watering during winter is essential, or the leaves will be liable to damp off. Towards the end of January the flower-stems will be seen, and the plants should be then transferred to the warm greenhouse.

ILSINGTON HOUSE, DORCHESTER.

THE mention of the name of Col. W. E. Brymer may remind some of my readers of a Dendrobium and a Cattleya that have been named in honour of the proprietor of Ilsington House, for both plants are well known and valuable. The mansion is situated in a beautiful park, with great stretches of lawn and meadows, interspersed with large trees, among them being some Limes and Beeches that are specially noteworthy. Some very fine Yews also stand out as single specimens, or are associated in clumps; and beds or borders of choice Rhododendrons make a picture of singular charm and beauty. The flower-garden is of good size, and the beds will soon be filled with various and showy plants, full of bright foliage and flowers.

Adjoining the mansion is a large conservatory, the roof of which is covered with Tacsonia Van Volzemii, whose pendent growths, and flowers of intense purplish-crimson, are thickly studded over the whole of the space. Planted out are large specimens of Dicksonia antarctica, with fine heads of spreading fronds, and tall stems, 10 to 12 feet high; with these are a number of large and handsome Camellias. On the front stages, amongst other plants, are numerous Cannas of the best varieties, including Italia and Austria.

Passing the gardener's house, we enter the long range of fruit-houses, and are much interested in the splendid appearance of the Peach-trees. In the late Peach-house the trees, instead of being planted at the front and trained on a trellis of the usual style, are planted across the house, some ten or a dozen of them, and fastened to wires that are fixed across the house right up to the roof, omitting, of course, the space for the pathway. These trees and wires are about 4 feet apart, and can easily be reached for tying, disbudding, or gathering. The method has proved satisfactory to Mr. Powell, the able gardener here, who describes the results as being very good. I have not found this method answer well in the case of early Peaches.

Passing into the late vinery, it was pleasing to notice the health and vigour of the growths. The Muscat Vines in another house were planted seven years ago, and are now in capital condition, the canes very strong, and the leaves all that could be desired. Another large vinery was planted twenty years ago, and a plant of Buckland Sweetwater, with three strong canes, always bears a very heavy crop of fruit. In one Peach-house the front trellis is used for Plum-trees. This range, facing due south, must be about 200 feet long.

THE ORCHIDS.

One of the features of this garden consists in the exceptional specimens of Dendrobium Falconeri, and Thunias Marshalli, Bensoni, and Brymeriana. Of the former, a number of plants are growing on Fern stems inserted in pots, and made firm and secure by crocks, &c. The old growths are wired round the Fern stem, and new roots have entered freely, then from these old bulbs new shoots have pushed out in all directions, so that these plants, of which there were many, were really little cones or pyramids. The bulbs of the Thunias become as thick as one's thumb, and not more than 18 inches high. T. Brymeriana × was the result of a cross between T. Marshalli and T. Bensoniæ. The condition of the plants show plainly that the treatment they require is a medium heat and moisture, with plenty of light at all times, for in the early months of the year growth commences, bulbs are formed, and flowers expand in a period of four months or less. During the other eight months the bulbs are ripening and remain dormant until the spring. The practice is too common of keeping Thunias growing in the shade for too long a time, with a good share of heat, hoping to secure fine bulbs and blooms, but by such a method lengthened bulbs are produced that seldom flower. If in August there is no sign of flowers, it would be better to pinch off the top of the growths and stand the plants in a dry and cooler place. The bulbs would then thicken and harden, and plump eyes would be formed for the coming spring.

There are several houses devoted to the culture of Orchids, and many choice plants are to be found growing in them. In one house I noticed about a dozen and a half of good plants of Vanda teres, many of them 3 feet in height. These were at one end of the house, where but little shade is given. The plants were fastened to rods of Elderwood, with the bark still on them. To this soft bark the roots cling, and the plants grow with rapidity and vigour. In the same house are a number of plants of Cattleya gigas hanging from the roof. For many years these have made good growths, the bulbs being very plump. Calanthes in pits are making a good growth. In a house chiefly devoted to the Lælias and Cattleyas, were many more plants of C. gigas, C. crispa, good varieties of C. Gaskelliana, C. Bowringiana (very strong), and Epidendrum prismatocarpum. The rare Cattleya Brymeriana is much like a short-bulbed Lælia elegans; its flowers are of medium size, and the sepals and petals are of a pale rosy purple. The lip, which has a narrow, closely-folded tubular base, nearly 2 inches long, is yellowish below, and pale lilac, with the front part veined purple, the throat being a clear yellow, and the lower lobe rich magenta-purple. Mr. Powell takes the greatest interest in hybridising and raising of seedlings. The original plant of Dendrobium Brymerianum is now a plant of large size, and a specimen to be remembered.

There are numerous plant-houses in which flowering and foliage plants are raised and cultivated in quantity, and pits for the growth of Melons, Cucumbers, and Tomatos.

The kitchen garden is planted with fruit-trees in every convenient spot, and every outbuilding supports either Pear or Plum-trees. An avenue of Apple-trees is just now a very interesting sight, as the overhanging blossom is very abundant. *W. S.*

A RUN THROUGH A TULIP-FIELD.

THE Daffodils are gone by this first week in May, after we had seen them in flower at Ard Cairn since January. The cycle of seasons how they skip round! The May Tulips were a blaze of colour. What are called French Tulips, grown in Holland by the million, must not be confounded with the old-fashioned, grandmother border-flowers of 200 years ago. These late-flowering, beautiful varieties, that were all the rage before Calceolarias, Lobelias, Golden Feather, Black Beetroot, led to their consignment to the rubbish-heap some thirty years ago. Most of the lovely colours here mentioned were known to exist in my grandfather's nurseries near Mallow about 1830, and it is assumed the old pioneer nurseryman must have brought them from England, he having been a pupil in Kew Gardens, and one of the old school. This was at the end of the last century. There is no trace of this old-fashioned nursery now remaining, unless in the presence of some fine specimens of Copper Beech, Golden and Weeping Ash, and some Beech Hedges, &c. The house is still standing, but cattle graze on the site of a once old-fashioned lovely garden—one such as the pen of Lord Beaconsfield, in *Lothair*, fully described. Here were great tall Pæonies, all sorts of Gentians, Rockets, old-fashioned Dahlias, Pinks, Carnations, Potentillas, Columbines, Honeysuckles, Sweet Briars, "Dusty Millers" (Auriculas), all colours in double Primroses, including the scarce crimson Pompadour; Scotch, Cabbage, and York and Landucks were wont to make their nests, using the dried leaves for the purpose. Then bowers of Everlasting Peas and Jasmines, great tall Lupins, Hepaticas, including the rare double blue; and quails and corncrakes frequented this spot—the former I have not seen for forty years in Ireland. On a May morning in those times, before the mowing-machine was thought of, and when the scythe did the work, the perfume from the cut-grass, the odour from the Tulips, Wallflowers, Hawthorns, the song of the birds, even the noise of the whetstone on the scythe, which came in at the windows, made such a delicious whole that one could not remain in bed. Then one had a romp in the mounds of green grass, and the white smock got stained green, and had to be dusted over with flour for fear of mother's anger.

The late Anthony Trollope thought out some of his earliest novels sitting within a summer-house smoking in this old garden during the years '47, '48, and '49. He loved the old spot, and rented it for three years!

But now to talk about the blaze of colour in Tulips at Ard Cairn, and to look at them this lovely May morning, when they forcibly remind one of a field-day with Lancers, their pennons aloft in Phœnix Park. What can possibly afford such rich colouring as good blends of Gala Beauty, fulgens, fulgens lutea, elegans lutea, spatulata in scarlet, orange, and striped; Didieri, in three or four colours; then Bronze King and Queen, Sunray, Sunset, and Billietiana; Golden Eagle, Golden Crown, Buenovenuta, Neglecta Picta (various), Fairy Queen, rich heliotrope and yellow; John Ruskin, a lovely ripe apricot colour and yellow; the rare and scarce fawn-coloured variety Flava; Bridesmaid, Bouton d'Or, Ixioides, soft canary yellow, with black base or blotch; Gesneriana lutea, macrospila, Shandon Bells, Silver Queen, York and Lancaster. In white Tulips we have Snowdon, Didieri alba, elegans alba, &c. But to fill up the gap with extreme effect there must of necessity, for sake of rose and scarlet, be plenty of Tulipa Gesneriana var. major in its four colours. The latter so cheap and sweet scented. This Ard Cairn collection of May Tulips does not include the Darwin, old English or Flemish sorts, and as now seen is one of the richest in the United Kingdom. *Communicated, May* 6, 1899.

PÆONY DISEASE.

This disease, as occurring in England and Ireland, caused by a fungus called Sclerotinia Pæoniæ, is not perennial in the tissues of the host-plant. This season, I have had the opportunity of carefully examining many hundreds of diseased leaves, received from widely separated localities in England and Ireland. The disease, in every instance, is seen to commence at that portion of the leaf-stalk situated about half an inch to an inch below the surface of the soil, and if the leaf-stalk is examined when the disease is just commencing, there will be found in every instance one or two inches of perfectly healthy leaf-stalk below the diseased portion.

Within a short time after its appearance, the disease extends down to the base of the leaf-stalk, the edges of the leaves curl inwards, and soon the leaf bends over and dies. In some instances, where the disease is abundant, the Botrytis condition extends to the foliage also. All infection of the leaf-stalks is due to the presence of sclerotia in the soil, that were formed on the decaying leaf-stalks of the previous season. Of course, when the disease is present on even a single plant, the Botrytis spores are readily scattered by wind, and thus infect neighbouring plants.

Preventative measures.—On the first symptoms of the disease, indicated by the curling of the edges of the leaves, such leaves should be removed, taking care to pull away the base of the leaf-stalk. Spraying at intervals of four days with a solution of ammoniacal carbonate of copper would check the spread of the disease due to Botrytis spores. Where the disease has existed, the soil round the plant should be removed quite down to the crown, and fresh soil mixed with quick-lime added. *Geo. Massee.*

CYPRIPEDIUM "ALICE."

This is the result of a cross between C. Stonei and C. Spicerianum. The flower we illustrate (fig. 125) is a monstrosity, showing a common tendency in Orchids to assume a dimerous or two-parted condition. In the present flower, we have one sepal and one petal both placed in the same antero-posterior plane, and a central column which also gives indication of the presence of two stamens, not placed laterally as they are usually, but one opposite the other. The flower appeared in a plant exhibited by Messrs. Veitch & Sons.

COLONIAL NOTES.

SINGAPORE.

In answer to your inquiry, I would put myself to considerable inconvenience with pleasure, if I could find Pinus Merkusii anywhere here, or any other Pinus in our hills. I have never seen or heard of it anywhere in the peninsula, nor anything likely to be it, nor have I ever met anyone from Sumatra or Java who claimed to have seen it. I am prepared, however, to believe it exists. Our Coniferæ here are Dacrydium elatum, and a Dacrydium like a Spruce Fir, which never produces, apparently, fruit or flowers, and which has been, I believe, supposed at home to be only a state of D. elatum—it grows on Ophir and other hills; Podocarpus cupressinus, P. neglectus, P. species which I have not identified, and Dammara robusta. That is all I have seen or heard of. But you will remember our biggest mountains, Tahan, Kerban, and some others, have never yet been got at—at least, by anyone who would take the trouble to bring anything down from the top. There may be Pines on the top of them, but I doubt it very much. One may reckon Pines as northern (Himalayan flora) plants. Now, as high as I have been, I have never yet seen any Himalayan types here. Ranunculus, Primula, Gentiana, are all absent; they all occur, however, in Java, and often at no greater elevation than I have been in the peninsula. Linaria alpina was once found on Mount Ophir; I have hunted for it on two occasions, and could not find it, nor has anyone before or since done so; but that is the only boreal alpine I know of here. Indeed, our hill-top flora is more Australian than northern, so I do not expect to find Pines here at all. But you may depend that if I do, you will soon hear of it, and I shall attempt to get the thing alive to England. *Henry N. Ridley.* [P. Merkusii is recorded in books as occurring in some of the islands of the Indian Archipelago. Ed.]

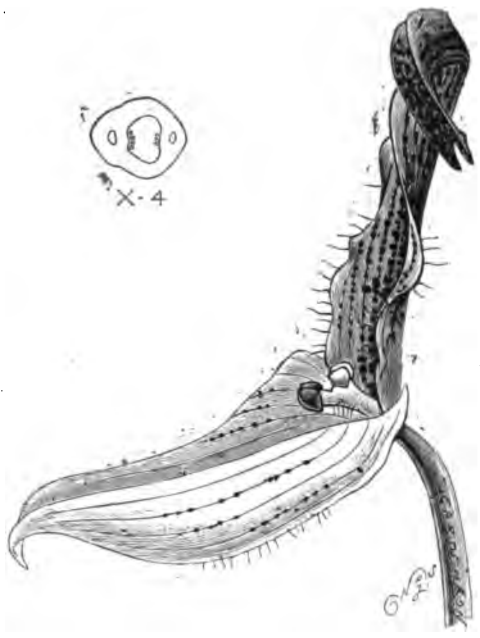


Fig. 125.—Cypripedium "Alice": malformed flower.

Sydney.

One of our pests here is the flying-fox—a gigantic bat with a spread of wings 2 feet across. These do immense damage to the summer fruits, if not scared away. This pest is disappearing with the settlement of the country, but the foxes are still sufficiently numerous to do much harm. They have only recently put in an appearance this year, but they were in time to work havoc amongst my late Peaches, of which they destroyed about ten cases. We erected bird-scares, which are effectual as long as the wind is blowing, but not at other times. We turned out with guns and shot a few of them, and scared off the rest, and after our first night's "battue" but few appeared. During the day they hang suspended from trees, generally choosing for their "haunt" the least accessible gullies. When a "haunt" is discovered there is great slaughter, all the people from the neighbourhood turning out to the work. In a sparsely-populated country like this, they often remain undiscovered for years. *A. P., April* 4.

BOOK NOTICE.

Flora of Kent, being an account of the flowering plants, Ferns, &c., with notes on the topography, geology, and meteorology, and a history of the botanical investigation of the county, by F. J. Hanbury and E. S. Marshall (Rev.), with two maps. (London: Frederick J. Hanbury, 37, Lombard Street.)

The title-page is really a table of contents, and so well does it indicate the nature of the book that not much remains for the reviewer to do, beyond advising all interested in the Flora of Kent to purchase it forthwith. Botanists have been impatiently waiting for this book for nearly a quarter of a century, but we do not think they will be disappointed now that it is placed within their reach.

The Kentish Flora is specially interesting from its great diversity—a diversity consequent upon the variety of physical conditions. In spite of modern "improvements," few counties possess so many delightful localities for botanical excursions. The chalk range from end to end of the county, the sea-side flora, the mud-flats of the estuaries, the thrilling excursions to be made along the downs near Dover, or in the undercliff between that town and Folkestone, the delights to be experienced in the sand-hills near Deal, and in the golf-links by Littlestone; the startling surprise felt by one who visits for the first time Dungeness in the early summer months, may all be specified in illustration of our assertion. Thirty-three out of forty-four British species of Orchids are to be found within limits of the county. Quite lately the Lizard Orchis, supposed to be extinct, has been re-discovered on the chalk formation. Small thanks to the inconsiderateness with which the fact was published. Happily, the habit which many of the tuberous-rooted Orchids have of passing a considerable proportion of their life underground may serve to preserve them from the ravages of plant-collectors. In any case, every field-botanist knows that Orchids are very abundant in some seasons in a particular locality, whilst in another season not a specimen can be found in the same field. The "Lizard" may thus escape entire annihilation. Cotyledon Umbilicus, Osmunda regalis, and Ceterach officinarum, are no longer to be found in their old localities.

On the other hand, some plants have been introduced, spread, and multiplied; such are Lepidium Draba, said to have been introduced with sacking, &c., on the return of the troops from the Walcheren Expedition. Dianthus Caryophyllus is reputed to have been introduced by the Normans. It is, or was, found on Rochester Castle walls, and similar situations, leading to the inference, first expressed we believe by Canon Ellacombe, that it may have been introduced by the Norman invader. Considering the large use of Caen stone, it is quite possible that some of the "introductions" may have been due to the extensive importations of the stone as building material. While speaking of introductions, we may note the record made in this volume of the occurrence of Senecio squalidus on the city wall at Canterbury. The present writer has to plead guilty to having introduced it more than forty years ago from the college walls at Oxford. The note from the late Mr. Gulliver, dated 1875, is therefore of much interest. Acorus calamus is recorded as an alien probably planted; but in our botanising days it grew in the Sturry marshes. Moreover, there is a tale current relating to this plant which, if it cannot be substantiated in every detail, is essentially correct, and which would go to show that the plant was native to the county. The tale is this: Many years ago—probably sixty or more years since—a native of Kent, somewhere near Maidstone, was advised by a London physician, whom he had consulted, to procure, for medicinal purposes, the root of the Sweet Flag. On enquiring where this was to be procured, the patient was referred for information on this point to the late Mr. Masters, of Canterbury, who had a good knowledge of local plants. On applying, accordingly, to Mr. Masters, the enquirer was informed in full detail where the plant was to be found, the locality thus minutely detailed proving to be a pond or piece of water immediate opposite the questioner's residence!

Many years ago there was an herbarium formed by Mrs. Grayling, in the Canterbury Museum. It was not likely to have been "critically" named, but at any rate it gave a very fair representation of the plants in the immediate vicinity of Canterbury. Perhaps—probably even—it is not in existence now, for when we saw it last, several years ago, it was evident that no care was taken of it. In the Dover Museum is a similar collection. Neither of these herbaria is mentioned in the list given in the volume before us, and there are probably also herbaria in the museums at Folkestone and Maidstone.

We have not space to advert at greater length to a most interesting volume—one of almost as much importance to the geologist as to the botanist, but we may, in conclusion, repeat what we said in the beginning, and advise everyone interested in Kentish botany to purchase this volume, for the very good reason that it is indispensable.

CONTINENTAL NOVELTIES.

GIANT WINTER STOCK.

"ONE of the novelties for next season," writes Mr. Ernst Benary, "will be a Stock of remarkable beauty, and bearing immense flower-spikes of large rose-shaped blooms of a bright rose-colour." The flower-spikes, which accompanied this note, were all that Mr. Benary describes the variety to be, and they also showed a branching, compact habit. It will prove a fine winter-flowering variety for pot-culture.

THE BERMUDA LILY.

IN continuing the study of the disease affecting the Bermuda Lily, the writer was authorised to visit Bermuda during the first weeks of April when the Lilies were mostly in bloom.

During a two weeks' stay, nearly every Lily field of importance was visited and examined. Great diversity exists in regard to the condition under which bulbs as well as other crops are grown. The soil of the Islands, as is well known, varies from a light "coral sand" with almost no organic matter or mineral constituents, such as phosphoric acid, potash, iron and free lime, to the deep or dark red soils which are almost clay in their nature, containing the finer silt-like sand with much organic matter, more or less iron and phosphoric acid, but often lacking in free lime. That the condition of the soil has a very great effect upon the vigour and healthfulness of the Lily is at once apparent to even a casual observer. In fact, the Lily is not different in this respect from most other crops. Bermuda soil scarcely ever gets a rest. While one crop is being taken out, another is put in, and sometimes it is the same crop year after year. The question of what fertilisers to use and the manner of using them becomes a very important one, and is beginning to be fully realised by the most progressive planters.

The Legislature has established a Public Garden to be conducted along the same lines as the experimental farms in the United States and Canada. The Superintendent of the Garden, Mr. G. A. Bishop, formerly of Kew Gardens, England, doing much to develop interest in agricultural subjects. Shortly after reaching the Islands, a year ago, he made a careful investigation of bulb culture from all its standpoints, and published a report. He recommended discarding and destroying all diseased stock and propagating only from vigorous, healthy bulbs, also to avoid land in which bulbs had been grown without rotation for several years. Mr. Bishop also experimented with different methods of treating the bulb to prevent developments of mites and fungi. As a result of putting these recommendations into operation, many growers have crops which are far superior to what they had last year. There are many instances, however, where growers preferred to follow their old custom, with the result that hardly a healthy plant can be found in their fields.

There are three diseases prevalent in the Islands, one known as "Yellows" is evidently brought on by a variety of causes. The first should be mentioned is a lack of lime in many of the soils, that is, lime that the plant can take up. A plant which is not rich in feeding roots is unable to take lime from limestone, and as this is the condition of some of the soil, the leaves of the Lilies growing in it are almost white. In other cases, yellowing appears to be due to a lack of iron; and a third cause for yellowing is decay and destruction of the roots by fungi and mites. The latter cause produces scattered cases, plants here and there throughout a field are white, while their neighbours may be perfectly green and vigorous. An examination of these yellow scattered cases always revealed an entire absence of feeding roots, or the destruction of the root-hairs of the feeding roots to such an extent that the plants could not obtain lime. It is, of course, evident that the bulbs of these yellowed plants cannot be as vigorous as those produced by plants having green leaves. As a matter of fact, these yellowed leaves cannot make any nourishment whatever for the dependent bulb, and unless they turn green again, as they occasionally do, after the production of new roots, the top is worthless.

Another disease which is very prevalent, and often very destructive to the leaves and stems of plants, is one known as "Ward's Disease." This is characterised by the appearance on the leaves of small brown spots, which in moist weather increase rapidly in size, finally destroying the whole top. Where fields are not properly sprayed with Bordeaux Mixture, this trouble may sometimes defoliate the plants shortly after the flowering period, cutting off much valuable and important nourishment from the bulbs. That this disease has had something to do with the general weakening of the stock cannot be doubted.

The third disease is one which we recognise here: the leaves are deformed, light-coloured, often covered with numerous, minute, shrunken dead spots, due to the attack of green-fly, and spots produced as the result of the general weakened condition of the bulbs. Such plants seldom, if ever, produce a good flower, and their roots are always badly infested with mites and fungi. This trouble is readily distinguished from the former, and undoubtedly is a direct result of a weak bulb. These are the plants which the Bermuda grower must carefully weed out and destroy. If this is done systematically, and careful attention is given to renovating and improving the soil, it will not be long before the forcer of Bermuda bulbs can count with some certainty upon his crop of flowers.

I was much pleased to find a very strong sentiment against cutting and shipping of flowers to sell in the United States. The best growers unanimously condemn this proceeding, but it is difficult to prevent unscrupulous people from giving the Islands a bad name in this respect. The injurious effect upon the bulb of cutting off several inches of the stem with the flowers and buds, has been many times pointed out. It is as injurious as if the top had been killed by fungi, and often more so, as it is a great shock to the plant, and has a tendency to cause premature starting of the bulbs.

The practice of disbudding, leaving only one bud to a plant, is quite generally followed, and there can be little doubt but that it is beneficial to the plant and hence to the bulb; but this is an entirely different process from cutting off the top, as everyone acquainted with the principles of plant growth knows.

Those of us interested in bulb culture have sometimes thought that this was the main industry of Bermuda; but as a matter of fact, while it is one of the very important industries, it is said to be far exceeded by the raising of Potatos and Onions. These are also mainly shipped to the New York markets for distribution over the United States. The Onion appears to be subject to a number of important diseases. The greatest loss has been suffered this year as a result of the attack of thrips. The work of these little insects causes the tops to become blotched with white dead spots, and if the thrips are very numerous the tops are killed, all except the young growth. The spots produced by thrips are often followed in damp weather by decay-producing fungi. One of these is Macrosporium. This fungus is thought also to attack healthy plants, and is very prevalent in some parts of the United States. A fungus disease which is more common is known as the Onion-rot, and is related to the fungus which causes a similar rot of Potatos. The roots of the Onion and the bulb are often attacked by the same mite that attacks the Lily bulb. We observed a number of instances where considerable damage had been done in this way. The trouble on Onions, however, will likely not develop to any great extent, owing to the fact that they are grown from seed obtained from Teneriffe. Onions should not be used for rotation with Lilies. *Albert F. Woods, Division of Vegetable Physiology and Pathology, U. S. Department of Agriculture, in "Florist's Exchange."*

THE HERBACEOUS BORDER.

TRILLIUM GRANDIFLORUM.

THIS charming Trillium is so much admired that any improvement in its flowers can hardly fail to be appreciated. The reference to a large flower shown among Messrs. Barr & Son's plants at the meeting of the Royal Horticultural Society, on Tuesday, May 16, leads me to remark that there appears to be considerable variation in the size of the flowers. Three or four years ago a friend in Canada sent me a number of clumps collected in Ontario. Several of these were put together in a large pot, in which they have since remained. One of these plants has annually produced flowers considerably larger, and consequently finer, than those of the others. The difference mainly consists in the breadth of the petals. In the same pot one can discern a considerable difference in the size of the blooms, there being nearly an inch of variation in the width of the petals. These plants have not been disturbed since their first planting on coming from Canada, so that the difference in size can hardly be accounted for by attributing it to cultivation. One plant also comes with a green mark—an elongated, pointed blotch—in the centre of each petal. The soil and cultivation do, however, account very largely for the comparative beauty of T. grandiflorum in gardens. Thus, in my own garden, a portion from one of the best plants I have ever met with never equals in point of size nor beauty its parent. In the interesting and well-kept garden whence it came, the Trillium is always grown in a border under the shade of Apple-trees. The soil is not what one would think a good one, being light, dry, and poor from the large proportion of granite-sand in it. Yet the plants are very fine, and soon increase to large dimensions. The last time I saw the Trilliums in flower in that garden, one clump had thirty expanded flowers on it, although it had been divided about two years before. The flowers are much finer than any I can secure in my soil, which is light and dry as well, but which I have tried to make amends for by planting the Trillium in a low, half-shaded position where it can be well supplied with moisture. It is to be hoped that others who have plants which show flowers of exceptional size will try to increase them when possible.

IBERIS LITTLE GEM.

In the same report mention is also made of Iberis Little Gem, which quite deserves the prominence given it. It has been in my garden since early in 1897, and is now in bloom for the third season since it came to me from Winchmore Hill. It has increased in size, as may be supposed, since that time, but this has been more in diameter than in height. Measured to-day in full bloom, it is exactly 5 inches in height in the centre—and highest part—of the plant. It is grown on a sunny rockery facing almost due south, and in light and sandy peat. It is one of the most valued rock-plants I have because of its hardiness, free-flowering habit, and—a notable merit—its giving no trouble. It blooms as freely as the taller varieties of I. sempervirens, to which I suppose it belongs. It roots easily from cuttings, and one would hope, will soon be quite plentiful. There are many positions in which this pretty little plant can be grown, where the larger Candytufts would be out of place.

IBERIS PERFECTION.

One is naturally led to refer to this Candytuft after speaking of Little Gem. Its value does not, however, consist in a dwarf, neat habit like the foregoing, but in the large size of its corymbs and individual flowers, and in the purity of its white blooms. One would like to know to whom we are indebted for these improved perennial Candytufts. He is a bold man who applies the name "Perfection" to a flower if he intends it to remain appropriate, and in view of the advance still likely to be made with hardy flowers, one can only say that the name is appropriate enough in the meantime. Climax is another good Candytuft, and both are, I consider, superior to the one named I. sempervirens superba. *S. Arnott, Carsethorn, by Dumfries, N.B.*

FORESTRY.

THE LEAFING OF TREES.

SPRING is a season so popular among lovers of Nature, that anything relating to it awakens pleasing associations and ideas. In the poetical mind spring is invariably regarded as the symbol of regeneration of youth, and the awakening of dormant energies into growth and action. It is evident that most of these ideas and associations owe their origin to the vegetable world, for it affords by far the most striking illustration of those periodic alternations of active and passive existence which are more or less peculiar to organic life.

Probably in no class of plants is the phenomenon more striking and attractive than in the bursting into leaf of deciduous trees and shrubs, for the change from bare twigs and apparent lifelessness to the tender green of the young foliage is both sudden and beautiful in its effect, and possesses for the first few days the additional attraction of novelty. The most pleasing feature which presents itself in this leafing process is the great variation in point of time, not only between the leafing of different species, but also between different individuals of the same species. It is a well-known fact that some species require much more warmth to start them into growth than others, the former being classed as late, and the latter as early varieties. Various attempts have been made to determine the exact amount of heat requisite to start into growth different species of the vegetable kingdom, and "thermal constants" have been formulated which are supposed to represent the warmth of the sun, reckoning from an imaginary year upwards, necessary for the development of different phases of growth. With some plants reported observations at the same and different stations have resulted in approximately identical totals, although the methods of reckoning, and the numerous factors of growth other than heat, render the science of "phenology" of a more or less theoretical nature.

From annual experience, however, we know the warmer or colder the local climate, the earlier or later vegetation shoots into growth or becomes developed, while soil, situation, and exposure also exert considerable influence on the process in question. All these influences upon growth are so well recognised, as to be accepted as a matter of course by gardeners, foresters, and farmers, and the result of them is invariably anticipated in cultural and other operations peculiar to the calling of each. But in the leafing of trees a factor is brought to view which is probably less clearly seen in other forms of plant life, viz., individuality.

In many cases, the growth and development of certain species are too often regarded as of a fixed and definite nature, and the characteristics of one plant taken for granted as being typical of the species. Close observation, however, demonstrates the fact that no two individuals are exactly alike, either in form, colour, or mode of growth, and with some genera this variation is greater between individuals of the same species than between individuals of two different species. In the case of trees, habit of growth, and the comparative earliness or lateness of beginning and finishing it, are the most striking characteristics of individuality; and to the latter, spring and autumn foliage owes a great deal of its beauty. In a mixture of early and late leafing species, the greatest variation in point of time will be seen, of course, but trees of the same species, and growing side by side, will be found to vary to a much greater extent than might be supposed. With some early species, such as the Larch, a spell of cold weather will greatly increase the difference in the time of leafing of two individuals, but, as a general rule, a difference of three weeks or a month can be observed in the leafing of trees growing side by side, and with the same exposure and soil. With the Beech, considerable intervals elapse between the earliest and latest, varying from a fortnight in some situations to a month or even longer in others. The Spruce is also a tree which shows a marked individuality in this respect, probably more so than any other, for as much as six weeks will sometimes separate early and late individuals. The Oak rarely shows a difference of more than three weeks, although it is a more difficult matter to note the first appearance of the leaf with this tree than in the case of the Beech or Larch. The differences noted above vary of course with the season, a quick, warm spring shortening, and a long, cold one lengthening the intervals by a week or ten days. Another peculiarity I have noticed with the leafing of indigenous trees, is the fact that trees growing on north slopes are frequently earlier in leaf than those growing with a greater exposure to the sun. Why this should be so is not easy to say, unless owing to the fact that plump, well-ripened buds are longer in bursting than those on badly-ripened shoots. Differences due to elevation and latitude are, of course, more strongly marked still; and a vast amount of information on this subject has been gathered together by the German Forestry Research Stations, the chief features of which were published two years ago. *A. C. Forbes.*

(*To be continued.*)

HOME CORRESPONDENCE.

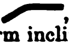
THE GARDENS AT POWIS CASTLE.—On the occasion of a recent visit to Powis Castle, Welshpool, I was pleased to see that this grand old place fully sustains its past reputation amongst the famous gardens of this country. Improvements effected by Mr. Lambert may be seen everywhere. Owing to a large and increasing demand for ornamental plants for house-decoration, Pines are not now so extensively cultivated as formerly, the pits only being utilised for the purpose. The span Pine-stoves have been remodelled, and adapted to the cultural requirements of decorative and flowering plants. Noticeable amongst the indoor plants are fine batches of healthy Malmaison Carnations, well-coloured Codiæums, Cordylines, and Caladiums. Calanthes, which are always fine at Powis, have started away again strongly and well. A batch of Acalypha hispida (Sanderi) was particularly noticeable; Eucharis are also cultivated very successfully. Early Melons in several structures are swelling-off a crop of handsome fruits. Strawberries on shelves were abundant. The greater part of the vineries have in recent years been replanted, and now look most promising. Some well-trained young Apple-trees in the kitchen-garden promise well. Peaches and Apricots on walls, despite an unfavourable season, have set an abundant crop. Chrysanthemums are represented by several hundred sturdy plants. Extensive alterations and additions are being made to the pleasure-grounds, which, when completed, will greatly improve the place; and last, but certainly not least, a handsome, commodious, and convenient bothy for the young gardeners is in course of erection. *W. H. W.*

COTTON PLANTS IN THE BOTANIC GARDENS, LIVERPOOL.—Amongst a number of these interesting plants (Gossypium barbadense) cultivated here last year, one was noticed that produced a greater number of pods than others, and was dwarfer in habit. Towards the end of the season cuttings were taken from it, and at the present time they are bearing a number of pods, already the size of Walnuts. The plants are also considerably dwarfer than those raised from seeds taken from the same plant. *J. G.*

RHUBARB LEAVES AS A VEGETABLE. — More than twenty years ago I was staying at the house of a French friend at a town in Burgundy. One day a dish appeared at table, which my host informed me was Rhubarb, of which he had heard the English were very fond. It consisted of the leaves, stalks and all, cooked as a *purée*, after the fashion of Spinach and Sorrel. To me it was not agreeable, and I infinitely preferred Sorrel—its near relative. But then, it may have been my bad taste and want of education. At the same table, young Globe Artichokes, split longitudinally, appeared raw, as a salad, and were eaten by the family at every meal. Here again it was probably my bad taste; a single trial revealed a flavour such as I imagine young Fir-cones possess, and I could not again be persuaded to deprive the family of some portion of a delicacy. *R. McLachlan.*

VINE-MILDEW.—Is Mr. Mallett's method of treating the Vine-mildew, by thoroughly syringing Vines with water at boiling point, old, or quite new? Certainly I have never heard of any such treatment previously, but others may have done so. If any readers have seen hot water so tried, or have themselves used it, will they detail the effects. I regard what Mr. Mallett has told us as the most important pronouncement in relation to any kind of plant disease made since the introduction of the famous Bordeaux Mixture. It has the merit of being a cheap remedy, and if it be so effective on Vines, and so harmless, then why not on numerous other plants as well. Plantsmen as well as growers of Grapes, will be interested to learn that hot water destroys that inveterate insect pest mealy-bug, and if it will kill that, then there is no insect pest that its application will not destroy; just as if it kills Vine mildew, it will kill other plant funguses. Tomatos are very subject to fungoid disorders, will these plants bear such drastic treatment? may Peas infested with mildew be similarly treated? Will hot water cleanse fruit-bushes of the mite, aphis, or red-spider? What if hot water be a remedy for the Black-Currant mite, what a gain would that be. Evidently we shall have the getting of myriads of things into hot water literally, or hot water on to them. Perhaps it will kill woolly aphis on trees. Perhaps dipping Auriculas affected with that pest into hot water will destroy it. The imagination seizes greedily upon myriads of possibilities for the beneficial use of boiling water. Oh, for the desired school of experimental horticulture, where its effects may be fully tested. *A.*

THE LATE JAMES KELWAY.—To be portrayed, described, and praised after death in the pages of the *Gardeners' Chronicle* makes your journal into a species of horticultural Wallhalla, for to be thus honoured is honour indeed. James Kelway, besides living a very long life, lived a most useful one, and in relation to horticulture, a great one. How readily is his life's work praised, now that he is gone. Strange was it, to me at least, that when what were called "honours" were, a couple of years since, being so lavishly given away, the "grand old gardener" of Somerset should have been ignored. Some far less worthy than he might have waited until they had become worthy. But, honoured or unhonoured, James Kelway has left behind a name and reputation that will live when that of some others have been forgotten. *A. D.*

RETARDING PEACH AND NECTARINE-TREES.—The destruction of the flowers of Peach and Nectarine-trees on open walls in some parts of the country by the early spring frosts, should point out to gardeners the necessity of inventing some more successful method of protection than that which now obtains, or of retarding the flowering season of these trees. Something more is required than double fish-netting, tiffany, and the like, to exclude such frosts as we have recently experienced, and in cases of heavy storms with sleet and snow, much damage may be done to the flowers by allowing the protecting material to flap against them [It is usual to guard against this. Ed.], to say nothing of the exclusion of bees and other agents for pollenisation [The trees should be exposed during the day. Ed.]. I am fully convinced that protecting material does more harm than good. When in charge of some gardens on the south coast, I was desired, much against my will, to cover a wall of trees, and accordingly did so, four trees remaining uncovered on account of insufficiency of material. These four were the only ones which produced anything like a crop, they were also quite free from blister, whilst the other trees became badly affected. At Isleworth no protection of any kind is used, yet a fairly heavy crop is always secured, that of last year being somewhat below the average. This year only four trees out of sixty have no fruits, two of those being very young and two very old; the others are showing abnormally heavy crops, and as many as forty fruits have been counted to the square foot (sample shoot enclosed). Until this date (May 26) I have removed nearly a peck of young fruits, and many more have yet to be thinned out. The reason for this success is not far to seek. It is a practice amongst gardeners to plant Peach and Nectarine trees on raised inclined borders; the object being to secure the maximum amount of warmth from the sun's rays, thus rendering the produce of that border a week earlier than that of the level ground. Is it not this additional warmth that hastens root-action, and as a consequence, early flowering? Trees on a level border in these gardens prove that it is so, when compared with those in an inclined border on a neighbour's wall, which runs parallel with my own, 50 yards distant. The climatic conditions, the aspect, and the varieties of fruit are identical, yet I have a heavy crop and the neighbour has not any, because his trees flowered a week earlier than my own. I may add here that when the flowers were dry at mid-day, I pollenised them by forcing air among the organs by means of a garden syringe fitted with a single jet; it is much quicker than the "rabbit's tail" and other methods, and is most effective in dispersing the pollen. The annual forking of the surface of the borders also conduces to early flowering, as the warmth of the sun's rays is admitted thereby to the roots; unless the soil is unusually retentive, or has been fouled by frequent mulchings, such annual forking is really unnecessary. I think every nurseryman who raises fruit-trees will agree with me that the best rooted trees in nursery beds are those close to the walks, and that the best roots of such trees are found under the walks where the soil is trodden hard. Mulching is perhaps necessary during summer to conserve moisture in the soil, but manurial aid could be applied in the form of artificial manures at a cheap rate, without fouling the soil. If annual forkings effect anything, they encourage the feeding roots too near the surface to be safe from drought; and on inclined borders forking has to be done several times during the summer, in order that water may be admitted to the roots, this water being applied at considerable cost of labour, and then insufficiently done. Trees on level borders may be soaked conveniently. It is not possible for water to stagnate on level borders if the drainage below the trees be in good order. Where wide inclined borders exist, and are cropped with early vegetable produce, as is the case in these gardens, a plateau could be levelled thus , 6 or 8 feet from the wall, thus securing a warm inclined border for such crops, and a cooler level border for the trees. Lastly, the foot or more of wall-space covered by the inclined border becomes part of the paying area above the trees on the level. *Geo. B. Mallett.*

FROST AND THE FRUIT CROPS.—A succession of frosts from the 24th to the 28th of May have caused much injury to vegetation in this district, and in the Valley of the Ouse. The lowest recorded temperature on the ground is 25° Fahr., and following a considerable rainfall, this has wrought devastation amongst Potatos and other vegetable crops, while the earliest Strawberry and Apple-flowers have been cut in many places. It is strange that we have had three similar periods of several days' frosts in March, April, and May; but the last observation, though dealing with much higher temperatures than in the two preceding months, yet show far greater and more general damage. *R. L. Castle, Ridgmont, Beds.*

LATHRÆA SQUAMARIA.—On p. 329 of the *Gardeners' Chronicle*, under the heading, "Cambridge Botanic Garden," I observed the mention of this remarkable parasite. L. squamaria is growing in the pleasure-grounds at Wentworth on the roots of Ilex aquifolium. [L. squamaria is common in England, but not the prettier L. clandestina, except where naturalised. Ed.] It has the appearance of certain species of Orobanche, to which family it belongs. *P. Bolt, Wentworth Castle.*

WOMEN AS GARDENERS.—Superior man cocks up his nose mighty high when he hears or reads of women as gardeners. There is one thing very certain in relation to women in connection with the vocation of gardening. It is that they bring to its study far more earnestness, steadiness, attention, and study, than the superior males do. If men-students were but endowed with woman's living earnestness it would be much better for them. I saw pretty well last summer, when giving lectures weekly to some twenty-five young women and from fifteen to sixteen young men, at the same hall, that whilst the males took no notes and gave little attention, the females gave the closest attention and took notes freely, also at the close asking questions. This was the experience of other lecturers. If some ten years hence men find women largely displacing them in the vocations of the world, let them blame themselves and not the perseverance of the ladies. *A. D.*

THE LATE MALCOLM DUNN: PROPOSAL TO RAISE A MEMORIAL.—Horticulture is, indeed, the poorer for Malcolm Dunn's death, and it will be very difficult to fill the gap so caused. The last issue of the *Gardeners' Chronicle* contained an interesting tribute to his many good qualities, all of which was true both in chapter and verse. There are hundreds who would testify to his extreme readiness to advise and help others, and the writer of this note in particular is not likely to forget the kind and fatherly counsel given him some twenty-seven years ago. I venture to say the name of Dunn is still green in Co. Wicklow, as it is in Scotland and England. A memorial of some kind in honour of this worthy man is sure to be raised, and whatever shape it takes, whether in the North or the South, I shall consider it an honour to subscribe my mite. Though gardeners, as a rule, are not blessed with too much of this world's goods, I am sure there are large numbers of the fraternity who would only be too pleased to contribute to such an object. *J. S.*

PARADISE STOCK.—I enclose a cutting from the *Field*, and am astonished that such heresy should be published by any paper. Although I am in touch with most of the Kent growers, I never heard of such a failure; and such a retrograde step as a wholesale condemnation of the Paradise stock points to the probability of the grower having either purchased cheap stuff from the Continent, or trees on the French Paradise, which is well known to be worthless, and which none of our best nurseries use. Quite recently, in my paper before the Society of Arts, I drew attention to this fact. When one sees the enormous gain to growers the use of the best Paradise stock has been, in point of fertility, early bearing, and heading, when trees on Crab stocks fail, I feel that such a libel should not go unanswered; and in connection with this subject, I may mention that I have grand healthy Apple-trees on Paradise thirty years old. It would be interesting to know from others the age of trees on this stock which are doing well or otherwise. *Geo. Bunyard.* [The paragraph in question says, that out of several thousands of Apples on the Paradise stock, not twelve are now alive after an interval of "some years ago." The writer recommends the Crab as a stock; but if he is correct, why graft at all? Ed.]

THE DOUBLE DARK WALLFLOWER.—Mr. W. Barr is to be congratulated on a notable find. He has secured stocks of the true old Black Wallflower, as it was called fifty years ago, when it was not uncommon in gardens. I saw it growing and flowering but a few days since, and gladly recognised it as the real Simon Pure, the lost sheep of the Wallflower family now found. It has similar habit to that of its better known compeer, the double yellow Wallflower, is fairly robust, and sends up from strong shoots good long spikes of bloom. We have seen it of late at the Drill Hall, that bourne to which all good things, old and new, inevitably come from somewhere, which shows that it is pretty plentiful, if not very common. Doubtless, even this fine double form suffers because it cannot be perpetuated from seed, but then so little time and trouble are needed to cause plants to be produced through cuttings put in under a hand-light or in pots stood in a frame. The flowers, whilst commonly called black, are really of a heavy maroon colour, differing materially from those of the russety-red variety, by so many regarded as the true form. It used to be known as Cheiranthus cheiri hæmanthus, or the "double-bloody flowered," which was a rather sanguineous appellation. We may still, with fair consistency, term it the Double Black Wallflower. *Kingston.*

KERRIA JAPONICA.—A large-flowered form of this Chinese shrub is now in fine character on one of the walls at the Chiswick Gardens of the Royal Horticultural Society. The blossoms are larger and fuller, as well as deeper in colour, than the common double form; as the last is growing near it, a comparison is afforded. It is thought to have been sent to the gardens by the late Col. Trevor Clarke, but nothing is known as to its origin; but it makes an imposing wall-plant. With whom and when the double form originated does not appear to be known; but Mr. G. Nicholson, in his *Dictionary of Gardening*, states that the single-flowered form is a much more elegant plant, having a very graceful habit, and being nearly always in flower. *Visitor.*

ACROPHYLLUM VENOSUM.—It is said that this once popular New Holland plant has become very scarce. One reason for this is to be found in the fact that it is difficult to cultivate with anything like success. It is not that the plant dies outright, but it falls away into a stunted habit of growth, out of which it is sometimes difficult to lead it. Time was when finely-grown and bloomed examples of this plant were seen at our large flower-shows in collections of stove and greenhouse plants; and though a single spike of bloom is not much of itself, a number of them on a well-grown specimen presented an attractive sight. "To grow it successfully," wrote Mr. Thomas Baines, "it requires the best soil that can be got, soft-water, and close attention. On no account should it be allowed to stand out-of-doors, not even in the finest summer weather. In one respect it differs from most other greenhouse hard-wooded plants—it will not long bear being under the full influence of the sun in a light house during the summer." Mr. Baines' favourite compost was the best fibrous-peat, carefully broken by the hand, all small particles being rejected, adding one-seventh of sand, and potting very firmly. *Ealing.*

OLD VARIETIES OF TULIPS AND DEPARTED TULIP-GROWERS.—The florists' Tulip, of all flowers, perhaps, needs open quarters and a pure atmosphere in which to develop in perfection its richly marked blossoms. It is this necessity, more than lack of interest, in the flower which in the course of the past thirty years has operated to banish it from suburban gardens. Sixty years ago, collections of Tulips were grown in the City Road, London, and one cultivator, a Mr. Franklin, raised a great number of seedlings, and obtained some fine forms and colours; a Mr. Bowler, of the Albany Road, Camberwell, flourished at the same time, and among the varieties which rectified with him, a bizarre, Everard, caused a great sensation in London Tulip circles. Mr. Greig, of Hackney Wick, obtained a number of seedlings raised by a Mr. Drinkwater of an earlier date, and also by a Mr. Clark. A "rose" named Juliet appeared in Mr. Greig's bed, for which, it is stated, he refused a very large sum of money. It is reported that Mr. Clark had a seedling bed of eighty rows, representing some 600 bulbs, and there is reason to believe that cross fertilisation was not much resorted to in those days, seed-saving being a somewhat haphazard process, and therefore the appearance of gems in a seed-bed was by no means frequent. John Goldham, presumably the father of Henry Goldham, of Tulip fame, purchased a number of Mr. Drinkwater's and Mr. Clark's seedlings in the breeder stage. He had himself been a raiser of seedlings at Camberwell for some years. Goldham spared no pains to acquire a collection of fine forms, and his sound and well-directed judgment helped him greatly in making his selections. He seems to have stood unrivalled and alone in regard to the value of his collection. It is reported that Mr. Goldham had a fine strain of a bizarre named Louis XVI.—a variety raised in Holland—and he was known to have refused the sum of £73 10*s.* for it. Mr. Brooks, then occupying a nursery at Ball's Pond, Islington, also had a collection, and sold some highly-esteemed varieties at high prices. Mr. Davy was then living in the King's Road, Chelsea, where he grew Tulips, and raised a variety, but of which class I do not know, and named it "La joie de Davy"; for this flower he was offered the sum of £157 10*s.*, and declined it. The father of the brothers Lawrence, of Hampton, obtained a bizarre named Polyphemus, obtained from a breeder by Mr. Clark; and the sum of £50 was given for four bulbs of it, though it was known that other persons had it also. A feathered byblœmen named Fanny Kemble, also raised from one of Mr. Clark's breeders, and of which there was but one bulb and three small offsets, was sold to Mr. Davy for £100. This flower was figured in some of the florist's publications of the day, and was ranked very highly by Tulip exhibitors for many years afterwards. Mr. Davy died soon after this purchase, and Mr. Goldham became the possessor of the variety, paying nearly the same price for it. Mr. Holmes, of Clapton, was also a noted grower, and broke a valuable bizarre named Louis XVIII. At his death his collection passed into the hands of Messrs. Milliken & Groom, of Walworth; and this variety was afterwards sold to Mr. Goldham for £42. At that time George Glenny was coming to the fore as an authority on Tulips, and it is said that he bought the stock of Mr. Bowler's Everard, comprising seven bulbs, for which he paid the sum of £140. There is reason to believe that in the forties—and relatively to the population of London in those days—there were as many growers of Tulips in the suburbs as there are of Chrysanthemums in the present day. Up to the middle of the sixties it was not an uncommon sight to see small beds of Tulips in the back gardens of the houses abutting on the Walworth and Camberwell Roads, with their protecting canvas-covering in May. To the worthies whose names have been referred to, there succeeded John Edwards, the Dicksons, the brothers Brown, Scarnell, Strong, Sanders, Hunt, Betteridge, Turner, Colman, &c. One by one these gave up their collections, or died, and no one succeeded to them. It will be matter for regret if a flower with such a singular and fascinating history as the Tulip should cease to be cultivated in the southern counties of the kingdom. *R. D.*

GOOSEBERRY CLUSTER-CUPS.—This fungus disease of the Gooseberry, resembling to a certain extent the Orange-rust of the Rose, is spreading rapidly, so much so that I fear a magnificent crop will be lost if it be not checked in its progress. [Our correspondent sent for our inspection some capital examples on leaf and berry of this troublesome parasitic fungus. Ed.] At first the fruit and leaves only were affected, but afterwards it spread to the young shoots. I have several hundred bushes distributed over a large garden, and not one is free from the fungus; and in a neighbouring garden the disease is very prevalent. We experienced sharp frosts during the third week in March, just as the bushes were coming into full growth, when no apparent injury was done, although 14° and 17° were noted, and during the month succeeding the berries swelled satisfactorily. From May 2 to the 10th, the weather was extremely cold, but fine, with a parching east wind. On May 11 the weather changed to rain, with some thunder, and it is since that date that the fungus has spread over the bushes. *S. Platt, Loughcrew Gardens, Oldcastle, Co. Meath.*

THE ROSARY.

PREPARATIONS FOR THE COMING SEASON.

Whatever may be the character of the approaching season, there is some essential work that all who wish to compete at the forthcoming exhibitions will have to consider; and as I write for those who are novices in that interesting branch of Rose growing I will notice some points which must be carefully looked to. In the first place, the beds must be well looked over, and if there are any shoots which belong to the stock and not to the Rose, they must be carefully cut away. Where Roses are grown on the Manetti, these shoots are more likely to be present than when the Roses are worked on the seedling Briar or Briar cutting; in the former case they come from the stock itself, and in the latter from suckers thrown out from it. The former are the more insidious because the foliage of the Manetti is so like that of some of our Roses, and a young grower may unwittingly be nourishing an enemy which he fondly believes to be a friend.

As the shoots advance great care will have to be taken to get rid of the maggot, which often destroys the hopes of the young grower; the habit of this pest is to get into a couple of leaves and then affix them to the bud, at which it begins to work away, and when once it has the opportunity of doing this it is too late to apply any remedy. I have never found that syringing is of any use; the only remedy is to go through the Roses every morning, and wherever the commencement of this destructive work is noticed, to at once destroy the maggot with finger and thumb. It is not pleasant work, but no one who loves Roses and wants to make a good appearance, will quarrel much with this unpleasantness. Should aphis appear (but of which as yet I see no trace), syringing with some of the various advertised insecticides must be carried on; and here I would give a word of caution—in using these various preparations be sure to adhere to the directions given with them. Some persons are apt to think that if 1 oz. is recommended it would be a very good thing to make it a little stronger, and take 2 oz. instead of one; this will probably disfigure, and it may injure the Rose as well as the aphis. Another point which the novice in Rose growing often finds it very hard to carry out is that of disbudding. There are some Roses which have only one flower bud on a stem, while there are others which have a cluster of three, four, and even five; it hardly need be said that if good and perfect blooms are wished for some of these must be taken away. The grower must harden his heart to select the best bud to be fully developed, and take away the remainder; most Roses form about three buds. A blunt stick or a quill are quite sufficient for this purpose in the earlier stage of development; and the sooner it is done, the more will the strength of the plant be thrown into the remaining blooms.

There is one point which oftentimes puzzles the young exhibitor, that is in what class he is to compete. Formerly he had but very little chance if he were a small grower, for he would be sure to find some one who has perhaps ten times as many Rose trees as himself competing against him; in fact, I remember one instance in which one of our largest amateur exhibitors entered in the class for six blooms. This is new impossible, for by the new arrangements of the National Rose Society the place of exhibitors is regulated by the number of plants they grow. So that it rests entirely with the exhibitor as to what class he shall compete in. An unknown correspondent wrote to me the other day, and said he had but fifty Rose trees, and asked in what class he had better exhibit. My reply was, do not attempt anything higher than six; and if there were a class for three I would have advised him to compete in that. No one who has not attempted it, knows the difficulty there is in getting even that small number of blooms in good order for the exhibition day. Most probably, my correspondent will endeavour to have as many varieties as he could without at all considering whether they were reliable or not; he wants to please himself by having many good sorts, whereas if he had only an eye to exhibiting he would find out what were the most trustworthy varieties for the date at which the exhibition was to be held. If it were a late one he would avoid such varieties as Mme. Gabriel le Luizet and John Hopper, whereas if it were an early one he would select these and such other Roses as have the character of being early bloomers. It will thus be seen how very difficult it is for any grower of so small a quantity of trees to obtain suitable blooms for the day of exhibition. We are not likely in the present day, when Rose exhibiting is so much improved, to see such dreadful sights of exhibition boxes and setting up as we used to see. I well remember the indignation of two amateurs whose exhibits were passed over, one having crammed triplets of Roses into a tube only intended for one, thus making it impossible for the judges to ascertain the character of the blooms; and another who in default of moss showed his box with a filling of chopped hay. It is of course sometimes difficult to obtain good green moss, and some exhibitors have an advantage over others by being able to procure it easily, whilst others cut the Gordian-knot by useing dyed moss. The labelling is oftentimes unsatisfactorily done, and therefore amateurs would do well to use the tubes and label-holders invented by Mr. H. Foster of Ashford; they are perfect in their way, and are in almost universal use.

The Season is a Late One.

Now a word as to the season itself. It has been a very varying one so far; we are now within a month of the first show at which the National Society will offer prizes. That cold spell which we have for so many years experienced between May 20 and the end of the month is now upon us, as I write, with its cold winds and slight frosts at night; it must therefore be a backward season, and exhibitors must be in some degree of anxiety as to how their flowers will come out, for when Roses are much retarded by ungenial weather they hardly ever attain to their perfect developement. But our exhibitors are spread over so large a portion of the country that we may reasonably hope that some parts, probably the southern parts of the kingdom, will have an advantage. The experience of last year shows, however, that there are adverse circumstances which it seems impossible to overcome, but "hope on, hope ever" must be our motto. There is much enthusiasm amongst our exhibitors, and I dare say after all our exhibitions will be fairly good; and I think the most sanguine expectations may be indulged in with regard to that to be held at Colchester, even should that at the Crystal Palace not to be so successful as we hope it will be. *Wild Rose, May* 15.

VARIORUM.

Photographing Flowers.—As nearly every person photographs now-a-days, the following hints, taken from a recent issue of the *Boston Herald*, U.S.A., may be acceptable to many of our readers: The photographing of flowers is one of the most difficult and yet fascinating fields of work, especially for those interested in still-life studies. With a very little trouble, one can arrange an ordinary room so as to make very good negatives of flowers. A large window, as high as possible, should be selected—one, if possible, with a working space on each side. The flowers should be arranged 5 or 6 feet from the window. To obtain an even light, one which will light the top as well as the front of the flowers, a screen of cheese-cloth or some other light-coloured material can be fastened to the top of the window, and carried out in the room 3 or 4 feet beyond the flowers. The background to be used should be determined by the colour of the flowers, but black is generally the best. This background should be so placed that no shadows will fall upon it. In this work, one thing above all others which must be sought for is perfect definition, which will demand the use of a small stop, unless a very large, long-focus lens is used. This will prolong the exposure, so that it will generally be found advisable to expose for at least ten minutes. The flowers having been arranged, cardboard reflectors should be placed, one on each side of the flowers, so that they will reflect the light on the deep shadows. This angle can easily be found by moving the cardboards and watching the flowers carefully. The purpose of this is to avoid strong contrasts, and to flatten the light. In focusing, the camera should be set a few inches higher than the flowers, and tilted slightly downward. In photographing white flowers, halation will often assert itself to a greater or less extent, and it may become necessary to use non-halation plates. The development of the plates should always begin with a weak solution, which will bring out the details of the flower construction more thoroughly, and will oftentimes overcome to a considerable extent the obnoxious halation. The printing should be strong, and by a process which will bring out delicate details, and give softness and tone as nearly black and white as possible. The colour of the mount should be selected with reference to the character and tone of the print.

THE WEEK'S WORK.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt Tetbury, Gloucester.

Bedding out.—The season has now advanced so far as to make it safe to plant out in the flower-beds most of the summer occupants. A sketch of the various designs and parterres should ere this have been prepared, which will make it easy work provided each bed is labelled with the name of the plants that will be planted in it, and the mode indicated in which to plant them. Harmony rather than strong contrasts in colours should be aimed at, and plants having flowers of such decided colours as crimson, scarlet, orange, pink, and yellow, go well together, and those with purple and blue flowers, should be planted near plants with flowers or foliage of white and yellow. In setting out the plants do not permit overcrowding, but allow each a sufficient space for the roots to spread and the plant assume its normal shape and size. In mixed beds let the plants employed be such as associate well together in regard to their requirements, in regard to quantity of water and manure, and shade or its opposite. Moreover, mixed beds should be so arranged that the weaker growers are not over-powered and smothered out of existence by stronger growers. One thing of great importance is never to plant anything that is dry at the root, it being a difficult matter, then, to moisten it under-ground. Provided that all of the plants are well moistened at the root previous to being planted, the bed need not be afforded water for a few days. It is not a good practice to leave plants in pots lying on their sides in the sun for several days together awaiting planting, and if they must wait, group them and draw a little soil up to the outer lines.

Dahlias.—Let a position be chosen for these plants where abundant sunlight reaches them, and where they are sheltered somewhat from the wind, the shoots being excessively brittle. In order to have fine blooms, the plants must be afforded a rich and deep soil, spent Mushroom-bed material forming a good sort of manure for them, and in dry weather water will have to be plenteously afforded. Where large roots are planted, the shoots should be reduced to the three strongest, which should be tied separately to a stake or stakes, the ties being loosened occasionally as the stems grow. Since so many of the beautiful forms of the Cactus Dahlia have been raised, the show and fancy varieties are less valued, and there are now splendid varieties of the Cactus type, which produce their blooms on long stems which throw them prominently above the foliage, and among the best of these are Gloriosa, Lady Penzance, Miss Annie Jones, Miss Frances Fell, Mrs. Charles Turner, Vulcan, Starfish, African, Matchless, J. E. Frewer, Keynes' White, and Charles Woodbridge. The Pompon varieties are very pretty, and form fine masses of colour when planted in borders of herbaceous perennials or in beds and borders by themselves; especially nice being the self-coloured varieties. The best varieties to intermingle with shrubs are Juarezi, Glare of the Garden, and Flambeau, these affording a glow of colour in the garden when flowering shrubs are out of bloom, and the effect endures till the tints of autumn begin to show themselves.

Bamboos.—These form graceful clumps of canes and foliage, and are grand additions to the flower-garden and dressed grounds. Bamboos suffer in appearance and in health if much exposed to the colder winds, and should, therefore, not be planted unless thick shelter from trees and bushes is obtainable. B. Métaké, Arundinaria Simoni, A. falcata, Phyllostachys viridi-glaucescens, and P. Henonis rank amongst the hardiest species, and are also the best for planting in low-lying positions. The tenderer species, of which I may mention P. aurea, P. nigra, P. disticha, P. tessellata, and P. pygmæa, will succeed most satisfactorily when planted in sheltered nooks in the grounds, and in the rock-garden if space can be found for them. Arundinarias and Bamboos need a rich, light, well-drained soil with abundance of water in the season of growth. Propagation is by division at the present season, that is, just as they are starting into growth. The leaves of some species of Bamboos fall in the winter months, still, the gardener must not take that as a sign of extinction of life in the stems, and cut them down, as they will again break from the axils of the leaves. Bambusa Fortunei aurea, a very hardy species of low growth, is a pretty plant for the edge of a border or for planting on the rockery. Its rhizomes soon extend, forming a pleasing mass of variegated foliage of a yellowish hue.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Disbudding Apples and Pears.—Pyramidal and bush-headed Apple and Pear-trees should have their surplus young growths removed about this date, making a commencement with those in the inner parts of the head, with a view to admitting light. Whilst growths are soft, it will suffice to rub them off the branches. It is usual for the leading branches to produce shoots too abundantly, and the most of these should be similarly removed. The Pear-trees bloomed this year most profusely, but the blooms have set unsatisfactorily; and in the case of trees of Beurré Hardy, Conseilier de la Cour, Marie Louise, Bergamot d'Esperen, Duchesse d'Angoulême, Pitmaston Duchess, Doyenné Boussoch, Beurré Superfin, and Beurré d'Anjou, nearly all the blooms dropped. A fair number of fruits seem likely to be retained on the following, viz.—Thompson's, Beurré Diel, Williams' Bon Chrétien, Durondeau, Marie Benoist, Louise Bonne of Jersey, Knight's Monarch, Souvenir du Congrès, and Josephine de Malines. Caterpillars have not been very troublesome on Pear-trees up to the present time, owing probably to the coldness of the weather; still, it will be wise in disbudding the trees to remove all damaged fruits, and squeeze between the finger and thumb all curled-up leaves.

Apple and Pear Cordons require a good deal of disbudding, notwithstanding the fact of "dwarfing" stocks being chosen for supporting them. In doing this operation the gardener should stop the stronger shoots and those most thickly placed first, and rub off the remainder, excepting those to be retained for the formation, later on, of fruit-spurs. These reserved shoots should not be left closer together than 6 inches. If a leading-shoot of a trained tree has reached the top of the wall or fence, or filled the space allotted to it, let it be pinched at the second or third leaf from the commencement of the new growth; but if there is space for further growth let it go on unstopped, but take care that it is trained-in early in the right direction.

The Morello Cherry.—Now that the fruit is set, disbudding may have attention; also pinch back to two or three leaves all foreright shoots if it be thought desirable to let spurs form, and remove all those at the backs of the shoots, and any that are badly placed. Shoots running in the right direction, and those that are readily laid in to cover bare spaces, may be reserved in sufficient number to meet the requirements, and no more, over-crowding being opposed to fruitfulness. The ruling idea is to cut out at the winter pruning much of the old wood, and the previous year's shoots that have borne fruit, and insert the shoots of one year old, thus renewing the youth of the tree. In going over the trees clear off all the remains of fallen blooms and petals, which would otherwise form lurking places for injurious insects, supplementing the work with a douche from the garden-engine. If aphides attack the trees, as they usually do, some soap-suds, a solution of Quassia, or Bentley's Extract, may be put into the engine, using half-a-pint of the latter in two gallons of clear rain-water.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Cymbidium Lowianum.—That this most useful Orchid is best suited by a cool system of culture is abundantly proved by the grand floral display annually produced here under such conditions. The flowers are capable of remaining fresh upon the plants for a long time, and it becomes necessary in the interest of the plants to remove the spikes when they have been in flower five or six weeks. A week or ten days subsequent to the removal of the flowers, those plants requiring larger pots should be treated as follows:—Let the increase in the size of the pots used be considerable; the plants are free-rooting, and it is not desirable to again disturb them until three seasons or so. If the plants cannot be easily removed from their receptacles in the ordinary way, break the pots with a downward stroke of a hammer. Place the ball of roots and soil in the new pot to see how much drainage is needed to bring the plant to the required level. More crocks will be needed around the ball, but they should be worked in with some of the rougher portions of the compost. Fill in with alternate layers of crocks and rough compost until within 3 inches of the rim of the pot, two of which should be filled with compost, and the other left for the convenience of watering. The compost should consist of good, lumpy, yellow loam one part, turfy peat one part, and the remainder of well-rotted farmyard manure, sand, or finely broken crocks, and sphagnum-moss. These ingredients should be used in a moderately dry state, and be pressed firmly together with a thin-edged rammer. Place the plants in a house that has ample means of ventilation, where they are not more than 4 feet from the roof-glass. At the present time the temperature may rise to 70° or more during the hottest part of the day if the top and bottom ventilators be open; but during the night it should recede to about 55°, or lower if natural conditions permit. Fire-heat need only be used when the inside temperature approaches 45°, and a lower temperature even than that will not harm the plants in winter, providing the atmosphere be fairly dry. Plants not needing to be repotted, should be supplied with sufficient water to keep the soil in a moist condition, increasing the supply, and alternating it with weak manure-water as the season advances. Those repotted will require very little water at present, and no manure-water during the present season. On all bright days they may be thoroughly syringed overhead morning and afternoon, the abundance of air given tending to great evaporation.

Cymbidium giganteum, C. grandiflorum, and C. Tracyanum, succeed under the same conditions and treatment, but should be removed to warmer quarters as soon as the flower-spikes appear, their natural flowering season being in the middle of winter.

Cyperorchis elegans, usually known as a Cymbidium, should be repotted if necessary. Excepting that no stable-manure should be given, and considerably less loam, the plant may be treated similarly to the Cymbidiums.

Miscellaneous.—Bletia hyacinthina may now be stood in a sheltered and sunny position out-of-doors, but will still require root-waterings. Thunias, likewise, if the flowers have past, may be hardened off, and removed outside, and stood in the sun to thoroughly ripen their pseudo-bulbs. Pleiones should be afforded weak manure-water, and the leaves occasionally sponged to prevent red-spider.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Cyclamens.—Such plants as were raised from seed last August, which are now in 3-inch pots, should be transferred to 5-inch ones, affording them a compost consisting of two-thirds fibry loam, one-part leaf-soil, silver-sand, and a small quantity of rotten manure. Let the plants be stood on a layer of coal-ashes or fine shingle, near the roof-glass, in a low, moist house or pit, where a night temperature of 55° is maintained, dispensing with artificial heat as soon as that temperature can be secured without its aid. Use the syringe freely both among the pots and overhead; air freely when the plants are established, and afford shade in the middle of the day during bright sunshine. Fumigate the plants upon the first appearance of thrips or greenfly, which should be looked for on the lower surfaces of the leaves. Later, the plants may be shifted into 7-inch or 8-inch pots, according to the size of the plant, and the purposes for which they are required.

Gloxinias and Achimenes.—The earliest batches of these plants will now be coming into flower, and should be assisted by applications of weak manure-water, particularly in the case of Achimenes growing in shallow pans and wire-baskets. The plants should also be afforded a drier and more airy position than was necessary while they were making their growth, a too close and moist an atmosphere causing the flowers to damp-off. Gloxinias may be grown at this season in a cooler temperature than would be advisable earlier in the year; and where space is needed in the stove, plants which are growing freely may be transferred to a shelf in an intermediate-house. The propagation of choice varieties of Gloxinias by means of the leaves may be undertaken at this time, choosing for the purpose the more mature leaves, and after cutting the midrib through in two or three places, peg the leaves down in pans filled with finely-sifted loam and sand in equal proportions. The leaves should then be covered with a bell-glass, and placed in the sun, in the stove, or a warm pit or frame.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Cauliflowers.—Those plants which, having been raised in heat, have been grown under hand-lights and in cold frames, will, in the south, begin now to have useable heads, and the beds should be examined from time to time, and the tips of the leaves bent down, so as to keep the light from the heads. When one has become fit for consumption, cut it from the plant early in the morning, and if not required for immediate use put it in a cool place. The showery weather has been suitable for planting, and the larger plants raised from seed sown in the open may, if space be valuable, be pricked off into nurse-beds, at a distance of 6 inches apart, to be lifted with good balls of earth later on; but if a suitable quarter be vacant, let it be prepared, and set out the plants forthwith. Cauliflowers of the dwarf Erfurt type may be planted at 15 inches apart, the Walcheren and the stronger growing varieties at 2 feet. Before planting draw moderately deep drills, and plant therein; and if clubbing be feared dip the roots in soot-water, and then in a puddle made with soot, clayey loam, and water, to the consistency of thick paint. Another sowing may be made, which will furnish Cauliflowers during the month of October.

Brussels Sprouts.—As the plants become large enough, get them planted in the quarters, in lines and beds. If in contiguous lines, allow a space 2 to 2½ feet from plant to plant; single lines, 2 feet; for the greater the space, the more abundant the crop of sprouts, and the longer time the stem-leaves remain on the plant. Brussels Sprouts succeed in a deep, moderately firm, rich soil.

Peas.—Make an abundant sowing of Marrowfat Peas, this time in trenches. Ne Plus Ultra will be found an excellent variety, but any of the Marrow Peas will answer for this sowing. The last sowing of these kinds should take place from June 10 to the 20th, after which date it is useless to sow any of the taller kinds; but a few rows on a sheltered border of some early varieties may be sown, which, if not cut off by frost, or crippled with mildew, will afford Peas till late in October. Earth up and put sticks to all rows when the plants are 6 inches high, and afford a mulch if the soil be light.

French Beans.—The first sowing being well above the soil, the produce of this sowing will probably be better than that of the earlier sowings, the cold three weeks ago having had an injurious effect on those. Sowings of Beans should be made every fortnight, in order to keep up a full supply of pods. Let advancing rows be moulded up similarly to Peas.

Asparagus.—The beds should be cut over daily, the heads being sorted into first, second, and sprue, and the butt-ends stood in pans containing water. Do not wash Asparagus to free it from grit, as by so doing it soon spoils.

Mint, Tarragon.—Increase the stock by pulling up young pieces having roots, and dibbling them in at a distance of 8 inches apart on prepared beds, and in a few weeks a good supply may be obtained, while the roots will be found excellent for forcing another year. Seeds of Sweet Basil, pot-Marjoram, and other tender herbs, may now be sown in a sunny spot, giving the beds a fine tilth, the seeds being minute.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

Strawberries.—In order to obtain good results, the gardener must afford water almost daily, and in bright weather twice or oftener a day to plants that are stood on shelves near the glass. The size of the fruits may be increased by the use of clear guano-water once a day, or by the use of an artificial manure in powder once a week. If the Strawberry-pots are stood upon a layer of turf with the grassy side reversed, the need to apply water to the plants will be less, while suitable plant-food will be afforded. The varieties James Veitch and Auguste Nicaise, possessing large fruits, should have these thinned to seven or nine on a plant, which should be supported on forks made of Birch twigs above the heads of the leaves, this being seen to in good time. An orchard-house is a very suitable place for the plants at this part of the season, and failing this convenience, a brick-pit may be utilised. Red-spider has given a good deal of trouble this season; but owing to the increase of sunlight, it is now easier to deal with by means of clean water applied regularly twice a day with the syringe till colour shows in the fruits, when it must be discontinued. The latest batch of plants that have set their blooms may be infested with aphides, in which case they should be dipped into an insecticide, or fumigated or vaporised. Vaporising is the more expedient method when the plants are many, and the house or pit is suitable. If but few plants are infested, these may, unless rooted into the turf-layer, be taken into a small house or frame for vaporising or fumigation. An occasional syringing with Quassia-water will avert an attack of aphis by rendering the leaves distasteful to them. If the stock of plants is insufficient to meet the demand, carefully lift young fruiting plants outdoors after affording them water, and having potted them, afford shade, and keep moderately close for a few days.

Young Vines in Pots.—Those Vines which are being prepared for fruiting next year will need frequent and regular attention in the matter of affording water at the root, syringing the foliage, and giving ventilation. Every leaf should be allowed space for full development. When a length of cane of from 6 to 8 feet has been made, the leading point should be nipped out, also the resulting new leader; thus compelling the hitherto dormant bud to break and take the lead. The growth of the laterals must be checked by pinching the new growth to one new leaf. Weakly canes of less than 6 feet should be encouraged to make further growth by affording them once a week water in which Peruvian guano is dissolved at the rate of one ounce to one gallon of water. Farm-yard liquid manure may be used in lieu of guano if diluted to a safe strength, and it may be used alternately with clear water. The degree of syringing should be modified to suit local conditions; in small houses in which red-spider usually puts in an early appearance, syringing at least once a day will benefit the plants; in larger structures with floors and border-surfaces kept well and regularly moistened, syringing may often be dispensed with without risk of any attack from red-spider.

Young Vines raised from eyes this year will be ready for shifting into larger pots, and in the case of Vines to be permanently planted next spring, pots of 9 inches in diameter will be large enough, and the same size will answer for those to be cut back next autumn and grown on another year for fruiting in pots. For planting and inarching purposes, very large pots are not desirable. The inarching of Vines may be performed at any time during the season of rapid growth. A good union can often be effected in one, two, and three-year-old Vines by inarching green shoots. For pot-Vines turfy loam of good quantity, roughly broken, a small proportion of decayed horse-dung, a few half-inch bones, a little artificial Vine-manure, and some burnt refuse, make a capital potting compost. The pots used should be new or quite clean ones; and the soil pressed into them with a moderate degree of firmness, and it should be in a condition neither too wet nor too dry.

The Early Vinery.—The fruit is now ripe or approaching ripeness, and the air should be kept comparatively dry, and constant ventilation afforded by day, more or less in amount in accordance with the weather and the prevailing wind; the admission of much air when an easterly or northerly wind is blowing, soon showing ill-effects in an attack of red-spider. The borders should not be allowed to suffer any lack of moisture. A trifling amount of air may be admitted at night by the top sashes; and, till we get warm weather, mild artificial heat must be furnished. Ventilation by means of the front sashes assists the colouring of the fruit; but it should be given carefully in warm weather, and with slightly warmed pipes—a little may be left on at night with certain advantage in the matter of colouring and bloom. Where syringing is practised during the growing season, this must now be discontinued. If Madresfield Court Muscat occupies a part of the vinery, and it is feared that cracking of the berries will ensue, apply a strawy mulch in order to arrest evaporation from the border. Outside borders are the better for being covered with corrugated iron, or wooden shutters, but in any case afford them enough water. A heavy application of water to a dry border is sure to produce split berries in Madresfield Court Grape, as will also the sun acting suddenly on a humid atmosphere in the early morning. Slight shading will help to minimise this evil where it commonly occurs. If red-spider take possession of the foliage, the only sure remedy is sponging the leaves, although sulphur may be applied to the leaves by means of a distributor.

BOTANICAL WALL-DIAGRAMS. — From the Society for Promoting Christian Knowledge, we have received a specimen of their wall-diagrams intended for class teaching in school-rooms, for which they are well suited, and would be still more so if they were of larger size.

APPOINTMENTS FOR JUNE.

TUESDAY,	June 6	Scottish Horticultural Association Meet. National Amateur Gardeners' Association Meet.
WEDNESDAY,	June 7	Royal Botanic Society, Floral Fête.
FRIDAY,	June 9	Essex Horticultural Show, at Epping (2 days). Royal Botanic Society, Lecture.
SATURDAY,	June 10	—Royal Botanic Society Meet.
TUESDAY,	June 13	Royal Horticultural Society Committees. National Rose Society, Committee Meeting. Royal Horticultural Society of Ireland, Meeting. Cambridge Horticultural Society, Exhibition.
WEDNESDAY,	June 14	Grand Yorkshire Gala at York (3 days). Royal Cornwall Agricultural Show at Launceston (2 days).
THURSDAY,	June 15	—Linnean Society, Meeting.
FRIDAY,	June 16	—Royal Botanic Society, Lecture.
MONDAY,	June 19	Royal Agricultural Society's Show at Maidstone (5 days).
TUESDAY,	June 20	Royal Oxfordshire Horticultural Society's Show.
WEDNESDAY,	June 21	Rose Show at Shanklin, Isle of Wight.
FRIDAY,	June 23	—Royal Botanic Society, Lecture.
SATURDAY,	June 24	Windsor Rose and Horticultural Show. Royal Botanic Society, Meeting.
TUESDAY,	June 27	Royal Horticultural Society Committee (special prizes for Roses).
WEDNESDAY,	June 28	Richmond Horticultural Society, Exhibition. York Florists', Exhibition of Roses. Rose and Horticultural Shows at Bath, Maidstone, Reading, Croydon, and Ryde, I.W. Annual Dinner of the Gardeners' Royal Benevolent Institution.
THURSDAY,	June 29	Royal Horticultural Society of Ireland, Exhibition. Sutton Rose and Horticultural Show. Rose Shows at Canterbury, Eltham, and Norwich.
FRIDAY,	June 30	—Royal Botanic Society, Lecture.

SALES FOR THE ENSUING WEEK.

TUESDAY,	June 6	Sale of Greenhouse and Bedding-plants at Mill Ash Nurseries, Duffield Road, Derby, by order of Mr. F. Lewis, by Protheroe & Morris.
WEDNESDAY,	June 7	Palms, Ferns, Greenhouse-plants, Gladioli, Japanese Lilies, &c., at Protheroe & Morris' Rooms.
FRIDAY,	June 9	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period May 21 to May 27, 1899. Height above sea-level 24 feet.

1899. May 21 to May 27.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Temperature of the Air. At 9 A.M. Wet Bulb.	Temperature of the Air. Day. Highest.	Temperature of the Air. Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	Temperature of the Soil at 9 A.M. At 2-feet deep.	Temperature of the Soil at 9 A.M. At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 21	W.	58·5	53·8	59·6	52·1	0·07	56·9	54·3	51·2	49·3
Mon. 22	N.E.	52·9	52·2	59·2	49·7	0·03	57·6	54·5	51·4	49·5
Tues. 23	S.S.W.	59·0	54·5	63·7	41·6	0·03	55·1	54·1	51·6	33·4
Wed. 24	S.S.W.	56·9	52·0	61·0	49·9	0·06	55·8	54·3	51·8	45·5
Thu. 25	N.N.E.	47·9	44·5	52·2	46·9	...	55·8	54·5	51·8	46·7
Fri. 26	N.N.E.	47·6	41·8	51·1	34·7	...	52·8	54·1	51·9	26·6
Sat. 27	N.N.E.	49·8	42·7	53·1	35·9	...	51·4	53·2	51·9	28·5
Means...	...	53·2	48·4	57·1	44·4	Tot. 0·19	55·1	54·1	51·7	39·9

Remarks.—The weather during the past week has been dull, with strong, cold winds.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—59·7°.

Actual Temperatures:—

London.—*May* 31 (12 P.M.): Max. 75°; Min. 43°.

Provinces.—*May* 31 (6 P.M.): Max. 65°, East Counties; Min. 53°, Aberdeen.

Fine, Warm.

The Temple Show. This great exhibition, which represented the high-water mark of cultivation, opened on Wednesday under the most satisfactory conditions as regards weather. The show itself was of the usual character, little or no alteration being observable in the general arrangements. While we have not observed any very striking novelty, the quality of the exhibits was fully up to if not beyond the average, and many subjects, which merely fill up space without any special purpose beyond advertising the exhibitor, were conspicuous by their absence. The setting-up of the exhibits was generally excellent, though overcrowding was still observable.

As last year, there were no announcements upon unsightly cards that particular exhibits had been grown from Messrs. So and So's seeds or with Messrs. So and So's manures; and cards announcing the name and address of the exhibitor even, were not permitted to exceed 84 square inches. The effect obtained by the imposition of these regulations is altogether satisfactory, for at many exhibitions outside the Royal Horticultural Society, not only is the general view of the show rendered less artistic by the obtrusion of advertisement cards, but some of the exhibits are partially obscured by them.

In consequence of the greater demand made upon the available space each year, and the impossibility of increasing that space, it was found necessary to exclude from this season's show all exhibits of table decorations, bouquets, vases of arranged flowers, and other florists' specialties.

Doubtless, some of the ladies especially have noted the omission of such exhibits with some disappointment, but if anything has to be sacrificed, it would be difficult to suggest the particular items that would please everybody. And it is very essential that new exhibitors of plants, flowers, fruits, and vegetables should be given every encouragement possible.

The collections of hardy shrubs, deciduous and other, were very beautiful, particularly one exhibited by Messrs. Fisher, Son & Sibray. A collection of hardy Bamboos, from Messrs. Veitch, and from Messrs. Paul & Son, Cheshunt, are noticeable in this connection.

In the tents, the exhibits were so numerous and so excellent, that it is difficult to particularise, and the detailed report in another column will furnish the curious reader with ample details. The Begonias of Messrs. T. S. Ware were specially noteworthy; the Roses of Messrs. William Paul & Sons, and of Messrs. Paul & Son of Cheshunt, Mount of Canterbury, and Turner of Slough, attracted the attention of visitors, as also the splendid groups of foliage and flowering plants shown by Messrs. Veitch. The Caladiums from the same exhibitors, and by Messrs. Peed, Laing, and others were also admired. M. Van Waveren, of Haarlem, showed a group of Astilbes, which illustrate the great variety there is now in these beautiful plants. Messrs. Sutton's Nemesias, and Messrs. Carter's Calceolarias are worthy of special notice. The Ghent Azaleas of Messrs. Cuthbert, Russell, and others, formed one of the most brillant attractions of the show, and Messrs. Jackman's Clematis showed what progress is being made in hybridising and selecting. Orchids as usual form one of the leading features of the show, and were bewildering in their numbers and beauty. Continental exhibitors, such as M. Linden, and M. Jules Hye, honoured us with their presence, and indicated the excellence of cultivation and of selection of varieties that long experience has led us to expect.

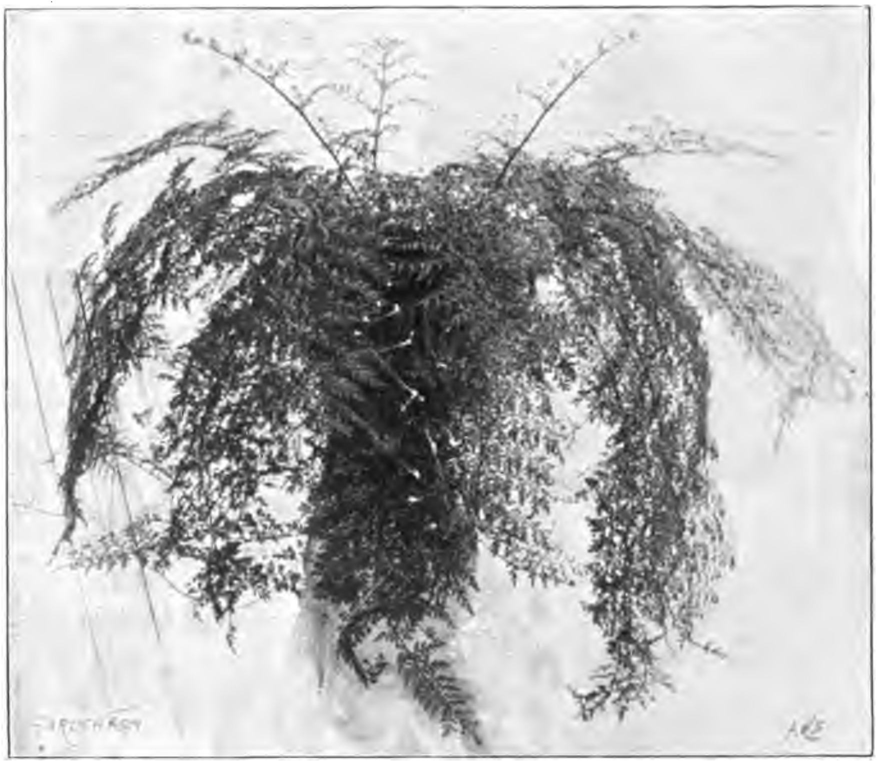
As to Ferns, it is sufficient to mention the collections of Messrs. Birkenhead, May, and Hill, to show how well these lovely plants were represented.

Fruit and vegetables were excellently shown. Peas in pots, Tomatos, and Asparagus, were remarkably good. Messrs. Rivers showed wonderful fruit-trees in pots, Messrs. Bunyard had a remarkable collection of Apples, and the exhibits of Messrs. McIndoe, Fife, and others, worthily represented British horticulture.

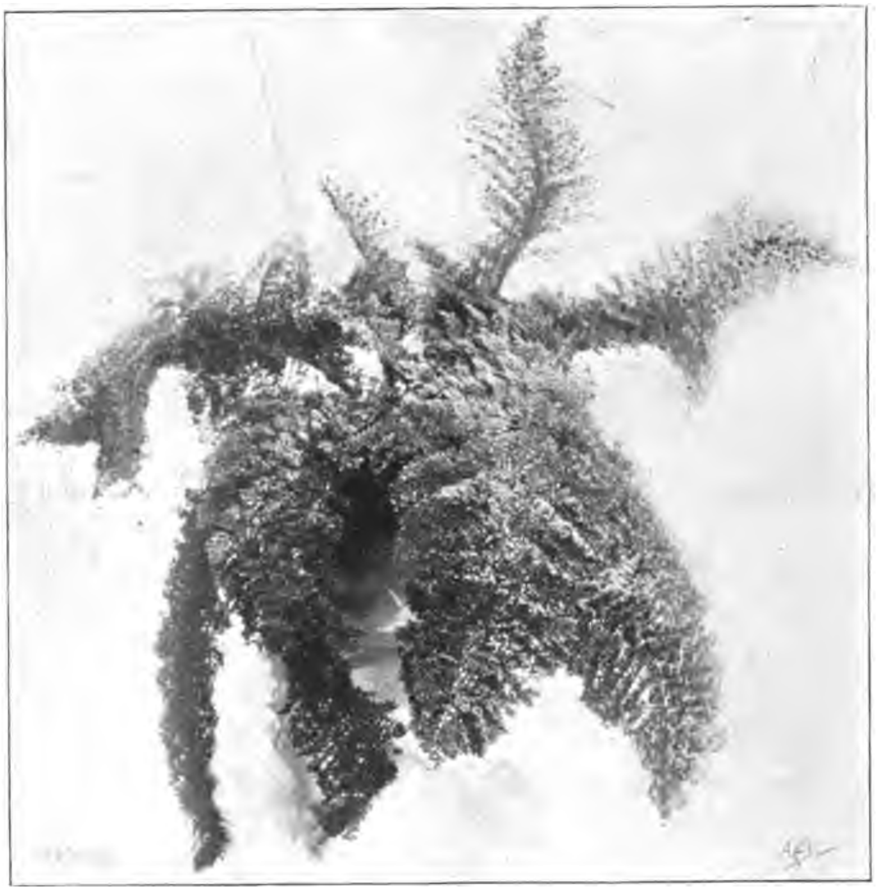
LINNEAN SOCIETY OF LONDON. — May 4, 1899.—Mr. A. D. Michael, F.L.S., Vice-President, in the Chair. Mr. I. H. Burkill exhibited specimens of a Daisy (Bellis perennis), found at Kew, in which the ray of the outer florets was so nearly absent that these consisted of scarcely more than ovary, naked style, and stigma. A paper by Mr. George West on "Variation in Desmids" was read. The Desmidieæ were shown to be morphologically specialised, and to exhibit a marked pattern and symmetry of form, major and minor symmetries being recognisable in many species. Variations in form and symmetry were specially dealt with, and a summary given of all that is known concerning the variation in the cell-contents, and in the conjugation of these plants. Observations were also made on the variability of the pyrenoids and moving corpuscles in the genus Closterium. The author's conclusions were as follows:—(1) The structure of the cell-contents is one of the most constant features exhibited by a species, but one of little classificatory value, owing to the large number of species which possess the same structure and arrangement of the chromatophores. (2) The outward form of the cell, as seen in front view, varies within certain limits, which are usually very small, but which may in exceptional cases be considerable. The form of the vertical view is, as a rule, a more constant feature than the form of the front view. (3) The ornamentation of the cell-wall is relatively constant, being always arranged according to a definite law, which is only transgressed by variations in one or more of the individual component groups which constitute the pattern of arrangement. (4) The prolific growth and rapid division of immense numbers of Desmids have a tendency to produce variations from the typical forms. (5) Slight changes in the conditions of environment cannot effect the characters of a species, unless they act for long periods of time. Some remarks were added on inter-relationships of the Desmidieæ, deduced from a study of their variation, and certain species supposed to possess a close affinity were shown to have arisen along very different lines of evolutionary development. The paper concluded with a general account of the evolution of the genera of Desmids. Critical remarks were made by Mr. A. W. Bennett, F.L.S.

—— The last meeting of the Society was held on Thursday, June 1, at 8 P.M., when the following Papers were read. — Mr. F. N. Williams, F.L.S.: On some Caryophyllaceæ from Sze-chuen, with a note on the recent botanical exploration of that province. Sir John Lubbock, Bart., M.P., F.R.S., F.L.S.: On some Australasian Collembola. Exhibitions.—Mr. W. B. Hemsley, F.R.S., F.L.S.: High-level plants illustrated by the collections made by Sir W. Martin Conway, Mr. Edward Whymper in the Andes, and Dr. Sven Hedin in North Tibet. Mr. Rupert Vallentin, F.L.S.: Lantern-slides and photographs of Sea-Elephant, Macrorhinus leoninus, obtained in Stanley Harbour, Falkland Islands, in February, 1899.

THE QUEEN'S EIGHTIETH BIRTHDAY was celebrated at Carlisle by the planting by the Mayor of a fine specimen of Tsuga Mertensiana, known in many gardens as Abies Albertiana, one of the most

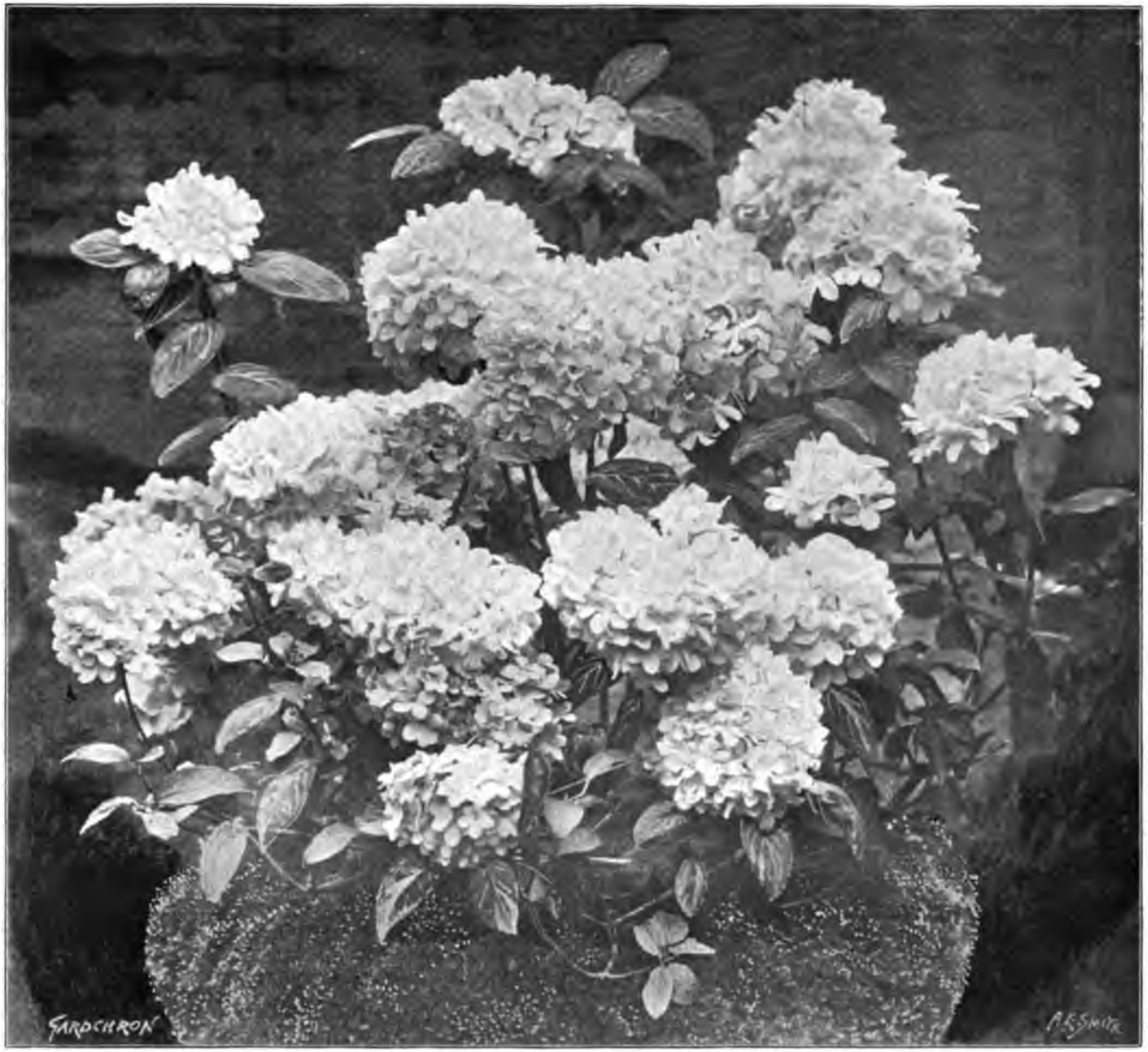


GYMNOGRAMMA SCHIZOPHYLLA VAR. GLORIOSA PROLIFERA.
(*Hort. Birkenhead.*)



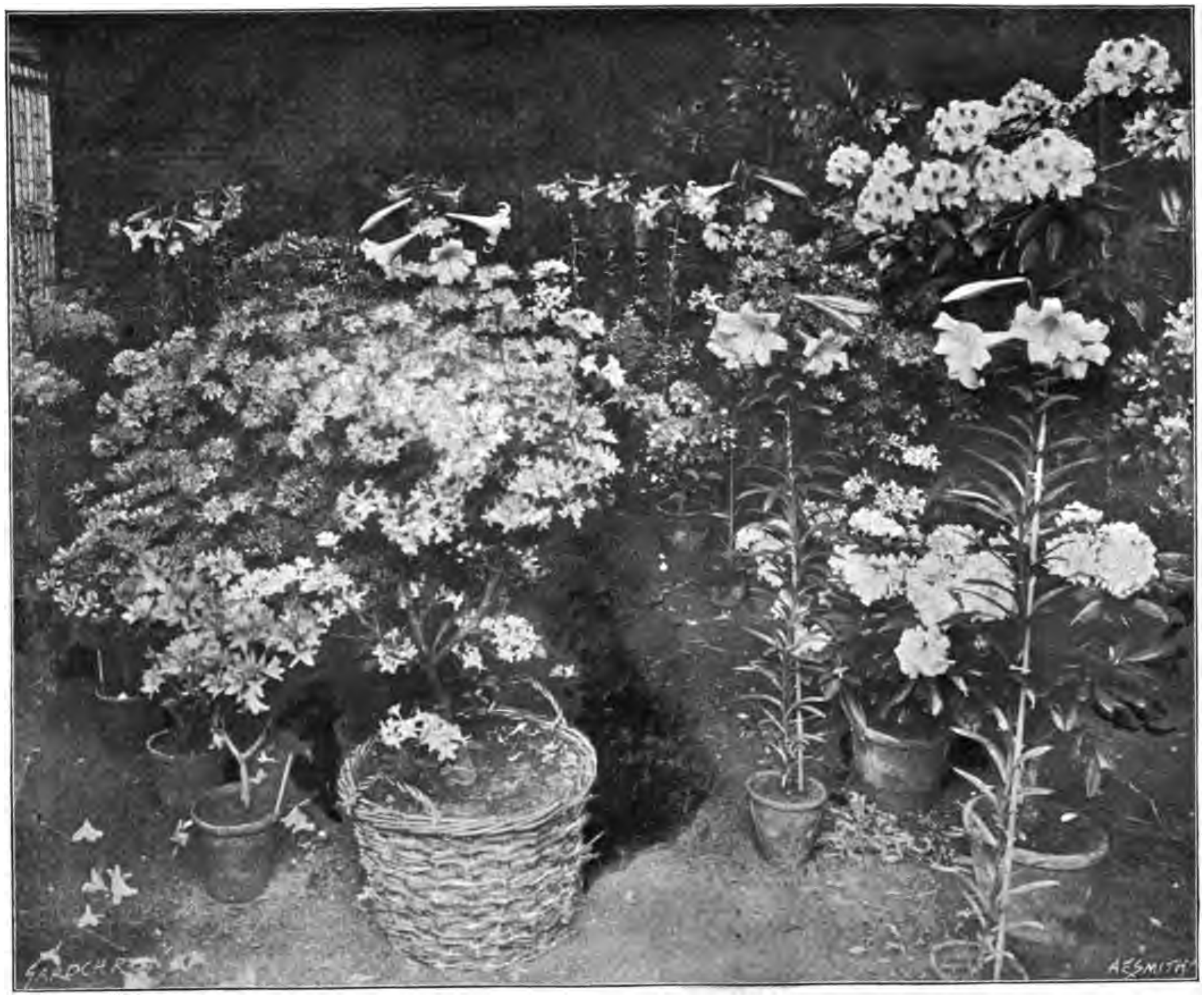
POLYSTICHUM ANGULARE VAR. DIVISILOBUM PLUMOSISSIMUM.
(*Hort. Birkenhead.*)

Supplement to "The Gardeners' Chronicle." June 3. 1899.



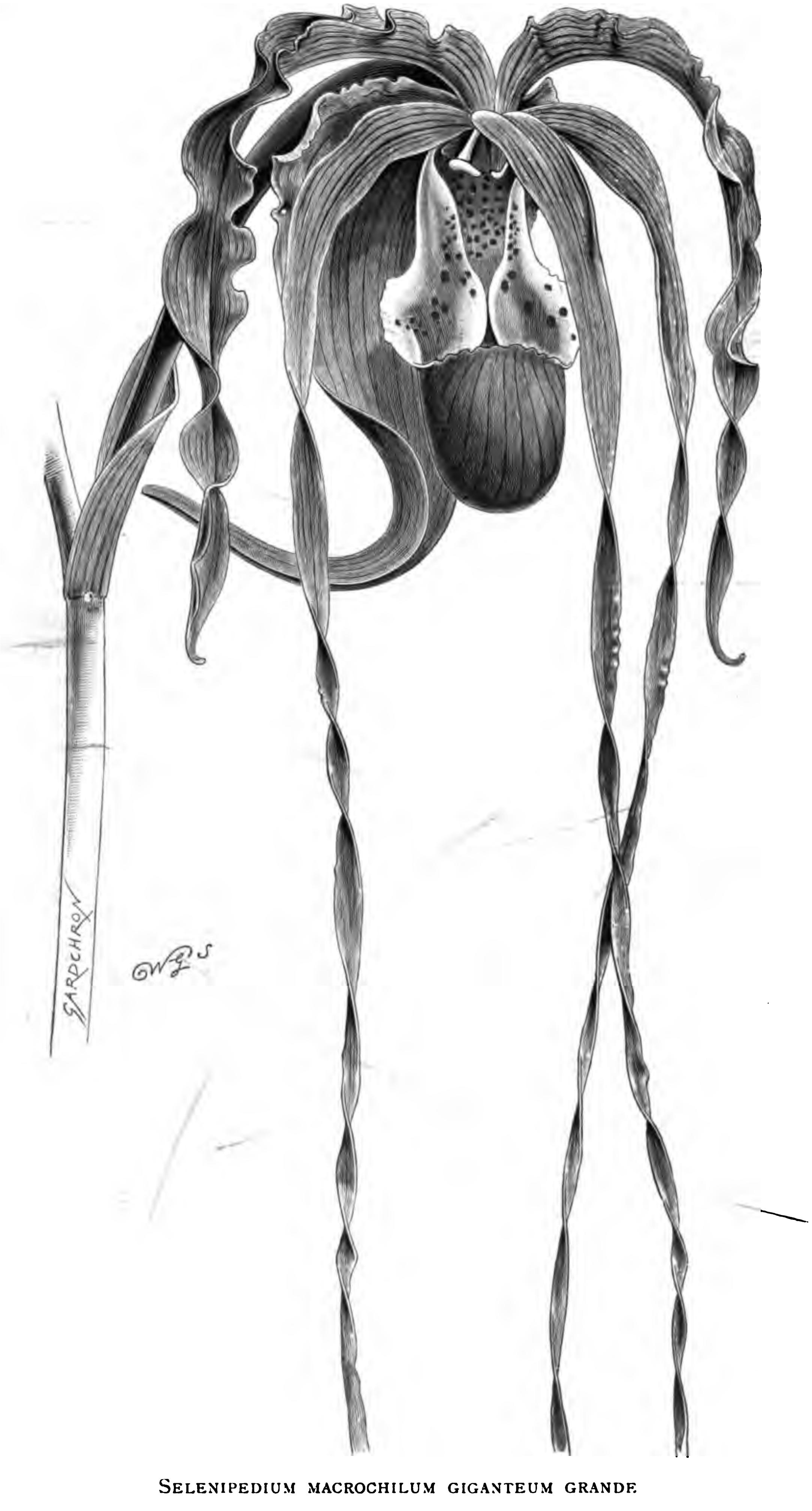
Viburnum macrocephalum, as shown by Messrs. Jas. Veitch & Sons at the Temple Show.

Supplement to The Gardeners' Chronicle," June 3. 1899.



Preparing for the Temple Show.

Supplement to "The Gardeners' Chronicle," June 3, 1899.



Selenipedium macrochilum giganteum grande ornamental of Conifers. The tree was presented by Mr. Watt, who on various other occasions has contributed in like manner to the adornment and wholesomeness of the city. A telegram was sent to Her Majesty notifying the fact of the planting of the tree.

Children's Play-grounds.—A very excellent work is that of providing play-grounds for the youngsters, where the freehold of an "open space" cannot be obtained. There are several such, we believe, in or about the Metropolis, and we are pleased to learn that a deputation from the London Playing Fields Committee, at the Passmore Edwards' Settlement, Tavistock Place, W.C., are invited to discuss the best means of providing extra open-space accommodation for the children of St. Pancras. Mrs. Humphrey Brown intimated that she wished to provide space in order that a thousand children might be able to play cricket and other games. For that purpose she would willingly give £500, and two of her friends a like amount. Steps will be taken at once to utilise this liberal offer—to which we wish all success.

A Conspectus of the Genus Lilium.—To the April number of the *Botanical Gazette* (Chicago), our esteemed correspondent, Professor Waugh, contributes the first part of a monograph of the genus Lilium. Sixty-four species are enumerated. The classification is much the same as that of Baker, given in our columns in 1871, with the addition of a new subgenus, called Pseudo-Martagon, including seven North American species, with paniculate inflorescence, and mostly erect or spreading flowers, funnel-shaped perianth, with segments slightly recurved at the lip, or finally recurved from the middle. Mr. Waugh does not appear to have seen Mr. Elwes' superb monograph —at least, he does not quote the fine illustrations therein given.

Spraying: "How to Spray, when to Spray, and what Pumps to Use."—When taking our inspiration from the United States, we did our best to bring the subject under the notice of our growers. We experienced a great amount of apathy, not only among cultivators, but also among advertisers. It was long before we were able to tell our readers where to get the substances recommended, and where to procure the necessary apparatus, and this in spite of the fact that our Hop-growers had long found out the value of the process. Now we can refer our readers to a trade catalogue issued under the above title by Mr. Cecil Hooper, of Swanley, Kent. We believe that the Strawson Company, Messrs. White, and Messrs. Merryweather also supply spray-pumps.

A National Flower.—Our good cousins on the other side of the Atlantic have not yet decided what flower is to be their national symbol. The matter is discussed not only in the lay press but in the *Transactions of the Massachusetts Horticultural Society*, and as a general result it seems that the only flower which fulfils all the requirements of the case is the Columbine. Some Aster, in which the stars and stripes might with a little "make-believe" be symbolised, would, to our thinking, be more appropriate than the Columbine; but it is not for us to interfere in so personal a matter. How long, we wonder, was it before the Rose was generally adopted as an English emblem?

Jadoo for Tomatos.—Whilst the reports we receive from India and the Colonies are variable in their tenor, the Channel Islands Tomato-growers speak highly of its value for their purposes. It seems to favour the production of roots.

Æcidium Grossulariæ.—A short time since we figured "the cluster-cups" which affect the Gooseberry, but we omitted to state that according to the experiments of Klebahn, this is a form of the same fungus that appears on certain Sedges, and is known under the name of Puccinia Pringsheimiana. The appearance of the two forms is so utterly different, that cultivators may well have doubts as to the correctness of the statement. Nevertheless, it has been proved by infection-experiments in so many cases, that no reasonable doubt can now be entertained. The Puccinia ribis, which grows on the Red-Currant, forms one kind of spore only, the teleutospore, and hence does not occur in two such distinct forms as in the Gooseberry fungus, though a specialised form occurs in the Red-Currant, but not on the Black-Currant. M. Erikson, who has lately published a paper on the subject in the *Revue Générale de Botanique*, tome x., p. 497, recommends that all diseased leaves and berries be burnt in the autumn as far as possible, and that in spring the bushes be sprayed with Bordeaux Mixture, and not the bushes only, but the soil in their immediate vicinity.

Abnormal Pear Blossom.—Mr. Basil has sent us a terminal shoot of a Pear, in which, intermixed with long-stalked leaves, are peduncles bearing green flowers of a peculiar structure. The "Pear" proper is absent, but there are five leafy sepals in a whorl, a number of leafy petals and stamens more or less spirally disposed, and in the centre a secondary flower with five ordinary sepals, as many petals, and several stamens, but no pistils. Such flowers have naturally no interest for the fruit-grower, but they afford valuable evidence to the botanist studying the real nature of the flower.

Presentation to the Rev. F. D. Horner, V.M.H.—On Saturday, May 27, the members of the Bradford Paxton Society paid a visit to the famous Tulip-garden of the Rev. F. D. Horner, Greta House, Burton-in-Lonsdale. The kindness with which they always have been received, and the respect which is entertained for Mr. Horner, led the members to ask his acceptance of a Smoker's Cabinet. On arrival, the party were welcomed by Mr. and Mrs. Horner, the presentation being made by the President, Mr. A. E. Benney, and brief speeches were made by Councillors E. E. Dowson, T. A. Williamson, and H. M. Trotter. Subsequently, an inspection of the garden was made, Mr. Horner explaining the evolutions of the Florist Tulip. Unfortunately, the season has been adverse, and the flowers were not far enough advanced as to show their full beauty.

Henry Shaw Medal, St. Louis, Missouri.—The Director of the Missouri Botanical Garden desires us to call attention to the fact that in June, 1893, the board of trustees of the Garden, founded a gold medal to be known as "The Henry Shaw Medal for the introduction of a valuable plant," and to be awarded each year, when practicable, for a new plant of value for cultivation exhibited in St. Louis, as a part of the premiums or prizes to a flower-show or exhibition provided for in the will of the late Henry Shaw; provided that the judges or other persons making awards at such exhibition shall certify that said medal is "awarded for a plant of decided merit for cultivation, not previously an article of North American commerce, and introduced to such commerce by the exhibitor during the year in which said award is made." Numerous plants worthy of the award of this medal are each year introduced into the American trade, and the undersigned will at any time gladly furnish detailed information to their introducers, as to the time of holding the flower-show at which they may be exhibited in competition for the medal. This year the medal will be offered as a part of the premiums placed in the hands of the St. Louis Florists' Club for award at their Annual Chrysanthemum Show, to be held in St. Louis, November 14 to 18, 1899. *William Trelease, St. Louis, Mo.*

Edinburgh Field Naturalists' Microscopical Society.—The members of this Society had a bryological excursion on Saturday, May 20, to the woods round Corstorphine Hill, under the guidance of Mr. Alister Murray. About forty species were collected, but none of any rarity. Corydalis claviculata was got plentifully, and in flower, at the same station recorded by Greville in the beginning of the century. Carduus heterophyllus was found also in quantity, with the root-leaves fully developed, and this would seem to be a new station for it in the Lothians. The melancholy Thistle is the "Cluas au fheidh" of the Highlanders, which is said by some to have been the original badge of the House of Stuart, instead of the Cotton-Thistle. The party returned by the village of Corstorphine, visiting the old church of St. John the Baptist, which was built in 1429, and the famous "Corstorphine Plane." This tree is a remarkable variety of Acer pseudo platanus, and the last of a double line of Plane-trees that once formed the avenue leading to the old castle of Corstorphine. "Corstorphine Planes" are greatly in demand by nurserymen, their chief characteristic being the striking colour of the young leaves in early spring; they have a rich, glittering yellow, so unlike the usual colour of the leaves of this species that they attract attention from a great distance by the beauty and strangeness of their tint. The tree has also the glamour of tragedy about it, for it was under it on the night of August 26, 1679, that James, Lord Forrester, was killed by his niece, an act for which she was beheaded at the cross of Edinburgh.

West Australia.—Mr. E. J. Scammell has been appointed travelling representative of the Agent-General for West Australia, and lecturer on the condition and resources of the colony. The office of the agency is at 15, Victoria Street, Westminster, S.W.

Abnormal Tulip.—Mr. G. Claridge Druce sends us a curious Tulip. From the side of the old bulb arises, parallel to the main axis, a secondary shoot about 3 cent. long, surrounded at the base by sheathing scales. At its apex it bears a long fleshy sheath, 6 to 7 cent. long, of a rosy-violet colour, split down on one side at the base to expose a thick, ovoid, acute bulbil, and prolonged at the apex into a long decurved point. The colour of this long sheath suggests an analogy with a perianth segment. The enclosed bulbil is terminal, about 25 mill. long, enwrapped by the fleshy sheath. The latter is burst open at the base by the pressure exerted by the growing bulblet. It would seem as if this were a precociously-formed lateral bulb, raised on a stalk, and with sheathing-scales of unusual thickness.

Publications Received.—*My Roses, and how I Grew Them*, by Helen Milman (Mrs. Caldwell Crofton), published by John Lane, Bodley Head, London and New York.—*An Encyclopædia of Gardening*, by T. W. Sanders (London, W. H. & L. Collingridge, Aldersgate Street).—*Landscape Gardening as applied to Home Decoration*, by Samuel T. Maynard (New York, John Wiley & Sons; London, Chapman & Hall).—*Annual Report of the Smithsonian Institution*, to July, 1897 (Washington, Government Printing Office).—*Les Plantes Utiles du Sénégal*, par Le R. P. A. Sébire (Paris, Librairie, J. B. Baillière et Fils, et chez l'Auteur, à Thiés, Sénégal).—The *Surrey Magazine*, May, 1899, edited by James Cassidy (published at 61, High Street, Guildford; High Street, Epsom; and 5, Pilgrim Lane, Ludgate Hill, London), contains an illustrated account of Ham House, and papers on Surrey Cricket and Surrey Reptiles; and last, but not least, the introductory portion of some Notes on Surrey Gardening.—*Travel*, edited by Henry S. Lunn, M.D., April, 1899, with articles on Our World's Cycling Commission; Up the Mackenzie River to the Polar Sea, Iceland; Famous Travellers of To-day, and many other appropriate subjects.—*Information Gazette*, Oxford, June, 1899 (Vol. II., No. 8), with papers on the "Educational System of Queensland," "Rome in Restoration, 1899;" "Agricultural Colleges," &c.—*The West-End* (Norfolk Street, W.C.), May 17.—*Agricultural Gazette of New South Wales*, April; this includes, among many other topics, Notes upon the Cultivation of Onions and Rape in the United States, J. H. Bulkeley; Edible Trees and Shrubs of the West Bogan, R. W. Peacock; and Native Food-plants (Part II.), J. H. Maiden.—*Annual Report on the Botanical Garden, Saint Lucia*, 1898. Satisfactory, though mentioning losses sustained from a hurricane on September 11.—*Report of the Government Botanist and Curator of the Cape Government Herbarium*, for 1898; mentioning many new acquisitions.—*Bulletin of the Botanical Department, Jamaica*, April, 1899, edited by William Fawcett.—*Tropical Agriculturist*, April, 1899.—From the U.S. Department of Agriculture: *Potato Diseases and their Treatment*, by B. T. Galloway; *New Spraying Devices*, by B. T. Galloway; and *Curing and Fermentation of Cigar-leaf Tobacco*, by Oscar Loew.—Illinois Agricultural Experiment Station, *Bulletin*, No. 54: *Spraying Apple-trees, with Special Reference to Apple-scab Fungus.*—Purdue Agricultural Experiment Station, *Bulletin* No. 69: *Insecticides*

Fungicides, and Spraying.—Hatch Experiment Station of the Massachusetts Agricultural College, *Bulletin*, No. 61: *Asparagus-rust in Massachusetts.*—*Erythea*, May. Contents:—Notes on Cyanophyceæ, by W. A. Setchell, Washington Botanical Club.—*Meehans' Monthly*, May, with description and coloured plate of Calluna vulgaris.—*Journal de la Société Nationale d'Horticulture de France*: Congrès Horticole de 1899, Memoires Préliminaires (Paris, 84, Rue de Grenelle).—*Bulletin de la Société Botanique de France.*—*Bulletin d'Arboriculture, de Floriculture, et de Culture Potagère* May.—*Le Chrysanthème*, May.—*Sur la Culture des Monstrosités*, by M. Hugo de Vries. —*Botanische Zeitung*, May 16.—*Botanisches Centrablatt*, Band 78, No. 9.—*Ueber Curvenselection bei Chrysanthemum Segetum*, by Hugo de Vries. Special Reprint from the Transactions of the German Botanical Society.

PLANT PORTRAITS.

ACACIA LONGIFOLIA, VAR. SOPHORÆ, *Revue de l'Horticulture Belge*, May.

ACALYPHA CHANTRIERI, a form with ovate acuminate green leaves, edged with white, *Revue Horticole*, May 1.

AMPELOPSIS GRAEBNERI, apparently a highly-coloured form of the common Virginian Creeper, *Gartenflora*, May 15.

APPLE REINETTE DE CAUX, *Moniteur d'Horticulture*, April 10.

SELENIPEDIUM MACROCHILUM GIGANTEUM GRANDE.

THE illustration in our supplement this week was drawn for us by Mr. Worthington Smith at the meeting of the Royal Horticultural Society on May 16, but we were not fortunate enough to be able to examine the plant at close quarters. It seems as if the dorsal sepal was absent, the anterior one (of two united) is broad at the base, and tapering at the apex into a long point; the two lateral petals are also prolonged into long, twisted, ribbon-like tails; the third petal of this series is the lip, which presents its usual character. Within this outer series there appear to be other three long-tailed segments, which may be representatives of the outer three stamens, which, in Cypripedium, are usually abortive. The column we had no opportunity of inspecting. Whether this interpretation of the flower be correct or not, there is no question as to its ornamental character. The hybrid has as its parents C. grande and S. caudatum Lindeni; and it was shown by Messrs. J. Veitch & Sons, Chelsea.

SOCIETIES.

ROYAL HORTICULTURAL.

THE TEMPLE SHOW.

MAY 31, AND JUNE 1 AND 2.

THE great annual event of the horticultural world in London took place in the Gardens of the Inner Temple, lent as usual by the Benchers with kindly courtesy to the Society. Fortunately, the weather was gloriously fine and warm, and everything went off most satisfactorily, the visitors arriving in great numbers late in the afternoon of the first day. The arrangements made by the officials were so good that there was an entire absence of grumbling, and the thanks of the community are due to the authorities for the smoothness with which the great function was conducted. For a general survey of the display as a whole, we would refer our readers to p. 352.

Among those who visited the show on the first day were H.R.H. The Duke and Duchess of Connaught, Lady Plowden, the Duke and Duchess of Devonshire, Countess of Warwick, and Sir A. Arbuthnot.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), W. H. Young, W. H. Protheroe, H. J. Chapman, De B. Crawshay, T. W. Bond, W. Thompson, G. W. Law-Schofield, W. H. White, C. Winn, A. H. Smee, A. Outram, H. M. Pullett, H. Ballantine, J. T. Gabriel, F. Mason, T. Statter, E. Ashworth, W. Cobb, G. Shorland Ball, E. Hill, F. Sander, H. T. Pitt, W. B. Latham, S. Courtauld, and R. Brooman White. For Awards see separate list.

It is difficult to strike a comparison between the shows of one year and another, but the general opinion was that the show of Orchids staged at the present show was the best which has ever been staged at the Temple, and that experience had taught the exhibitors to make a more effective display with their plants than formerly, all the groups being well arranged, some of them even artistically; an uniform setting of small Maidenhair Ferns, Asparagus plumosus, A. Sprengeri, &c., playing an important part in combining the whole in an effective display.

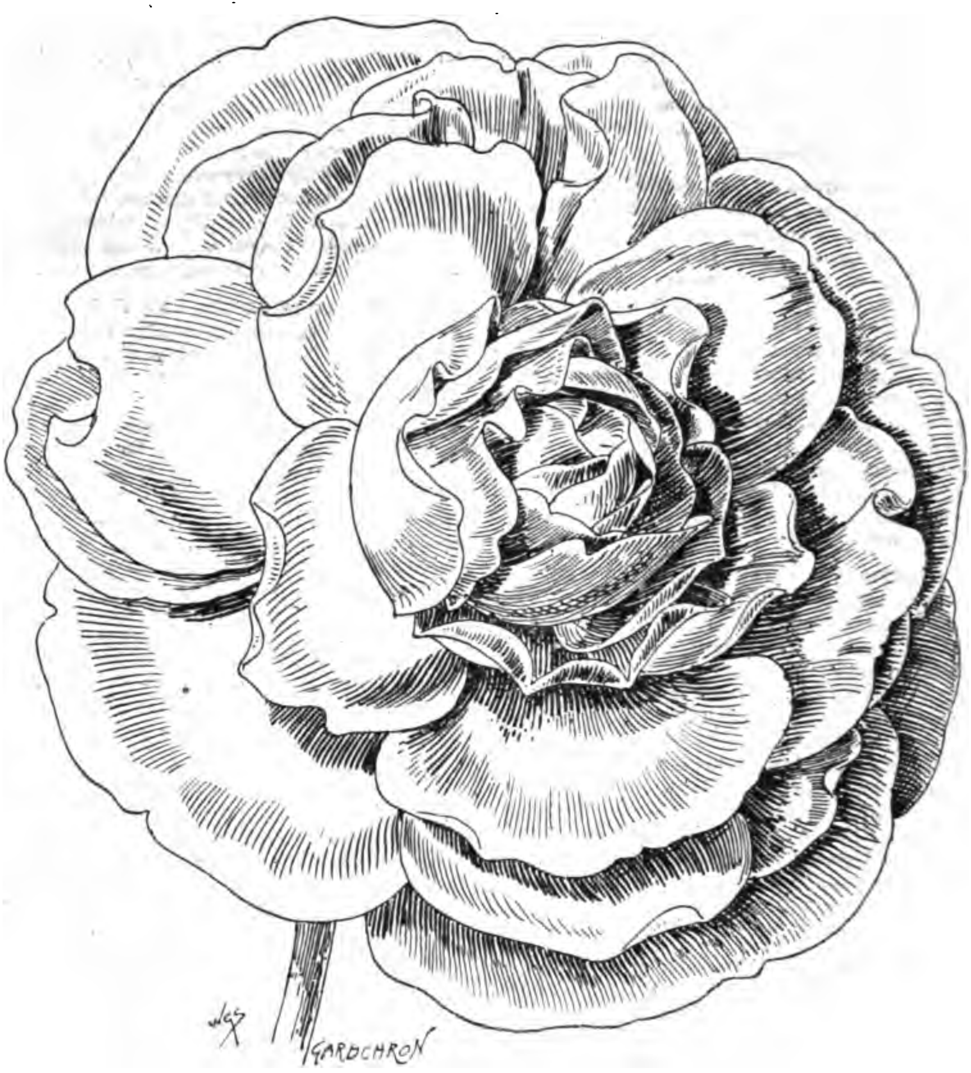


FIG. 126.—DOUBLE BEGONIA "JESSIE POPE": FLOWER OF REAL SIZE; COLOUR PALE PINK.

(Exhibited at the Temple Show by Mr. T. S. Ware. See List of Awards.)

On one side of the central stage Sir TREVOR LAWRENCE, Bart. (gr., Mr. W. H. White), arranged by far the finest group in the show, and perhaps the best which has ever been shown from the Burford Gardens, every plant in it being good, and the whole carefully arranged. Of the taller plants in the back rows, two elegant specimens of Vanda teres, each with about three dozen flowers, showed that fine old Orchid at its best. Arranging well with them were specimens of the white Thunia Marshalliana, with a score or so spikes; the dark rose T. Bensoniæ, with a similar number; the best form of it being T. B. superba, with very large rose-purple flowers. Among others of the taller specimens noted as remarkable were a fine Sobralia macrantha alba, with three snow-white flowers, and several buds; Epidendrum prismatocarpum with nine spikes, E. Wallisii, E. × Endresio-Wallisii, E. × elegantulum leucochilum, E. Schomburgki, and other tall Epidendrums, Oncidiums, &c. The Cattleyas represented were of the best, the varieties of C. Mossiæ including a grand plant of the pure white C. M. Wagneri with eleven flowers, one of the finest specimens of white Cattleya ever produced; C. M. Goossensiana, a charming blush-white flower with the most vivid violet-tinted crimson lip, having a distinct blush-white margin; and other fine forms such as C. M. Reineckiana. The forms of C. Mendeli were equally good, the best perhaps being C. M. burfordiensis, a blush-white flower of perfect form with rosy-crimson lip. The many Cypripediums were remarkable for their handsome foliage, as well as for their fine flowers.

Among them were grand examples of C. × Fowlerianum, "Burford variety;" the best type of C. Lawrenceanum, still one of the most stately species; C. × superciliare, C. × Swanianum superbum, C. Hookerianum Volonteanum, C. × Eleanor, C. granduliferum, &c. Among the many good Odontoglossums were some remarkable forms of O. crispum, both white and blotched forms, the best of the former being O. c, xanthotes, "Burford variety," a pure white, with pale yellow callus; a pretty purple-blotched O. Pescatorei, and good examples of most of the other showy species, many of them having been grown at Burford for many years. Among other remarkable plants were a fine Dendrobium Falconeri, D. nobile nobilius, D. Victoria Regina, some magnificent Miltonia vexillaria, a grand example of Phalænopsis amabilis, Masdevallia Harryana regalis, with twenty-two flowers; M. H. miniata, with forty brilliant blooms; Catasetum × splendens olivaceum, some fine Lælia purpurata, L. × Phœbe, L. Cowani, Lælio-Cattleya × eximia and × Canhamiana, and the charming and rare Cymbidium tigrinum, with twenty-three flowers. A small group in the centre, composed of rare and pretty botanical species, were interesting to the more advanced students of Orchid lore. Among them were Masdevallia O'Brieniana, M. caudata xanthocorys, M. × Gelengiana, M. Wendlandiana, M. hieroglyphica, Polystachya bracteosa, P. Lawrenceana, a little beauty, with pale rose labellum; P. zambesiaca, P. bulbophylloides, Campanemia uliginosa, a tiny plant, with racemes of small white flowers; Saccolabium gemmatum, Restrepia trichoglossa, and a pretty yellow and red species near to R. elegans; Habenaria rhodocheila, Physosiphon Loddigesii, the rare natural hybrid Oncidium × Larkinianum, Bulbophyllum barbigerum, B. elegans, and Ornithocephalus grandiflorus with six spikes.

Next came a group of about twenty grand Odontoglossums, set up with the scarlet Cochlioda Noezliana, sent by W. THOMPSON, Esq., Walton Grange, Stone, Staffs., staged with the usual skill displayed by his gardener, Mr. W. Stevens. All were good, and specially fine were Odontoglossum crispum Arthur Briscoe, a finely-formed, blotched flower; O. × Coradinei Waltonensis, and O. × C. Roeblingi, both pretty, and showing the two extremes of the many forms. O.

triumphans King Alfred, a very finely-shaped flower, with yellowish-white ground colour, blotched with tawny-brown; O. × Andersonianum albo-maculosum, a large, white flower, spotted with reddish-purple; a noble plant of O. luteo-purpureum with two spikes, one of forty-three, and the other of thirteen flowers. All the other plants were also superbly grown, and of fine quality.

Adjoining was a very pretty and tastefully-arranged group, sent by Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young). Elevated at the back, was a fine specimen of Dendrobium thyrsiflorum with ten spikes, and arranged on each side were noble specimens of Cymbidium Lowianum alternating with equally fine large plants of Lælia purpurata, the latter having four very remarkable varieties, viz., L. p. Arthur Wigan, L. p. Russelliana, L. p. Ethel Gray, and L. p. Othello, all very fine and distinct. Other remarkable plants were Phalænopsis Sanderiana "Wigan's variety,' the perfection of pure rose-pink Phalænopsis, and one of the finest in shape of any known Phalænopsis; Cymbidium Devonianum, with four spikes; Cypripedium callosum Sanderæ, with two flowers, C. bellatulum album, C. × Godefroyæ, hybrid, very pretty; Cattleya Skinneri alba of the best type, C. superbum splendens, C. Schilleriana, C. × Lowryana, Lælio-Cattleya × Schilleriana, Odontoglossum crispum, O. × excellens, and O. × elegantius; Maxillaria Sanderiana, Trichopilia tortilis, Spathoglottis Veillardi, Cœlogyne Schilleriana, Dendrobium × polyphlebium, D. × Venus, Epidendrum Wallisii, and the fine old E. falcatum with twelve large flowers and buds; also a fine Odontoglossum Œrstedii, covered with flowers. Continuing, W. A. Gillett, Esq., Fairoak Lodge, Bishopstoke (gr., Mr. E. Carr), staged a nice group, the main features in which were some very fine Cattleya Mossiæ, arranged with good Odontoglossum crispum, O. Pescatorei, and other good Odontoglossums, Oncidiums, &c.; in front being a very neat and praiseworthy specimen of Miltonia Phalænopsis covered with flowers.

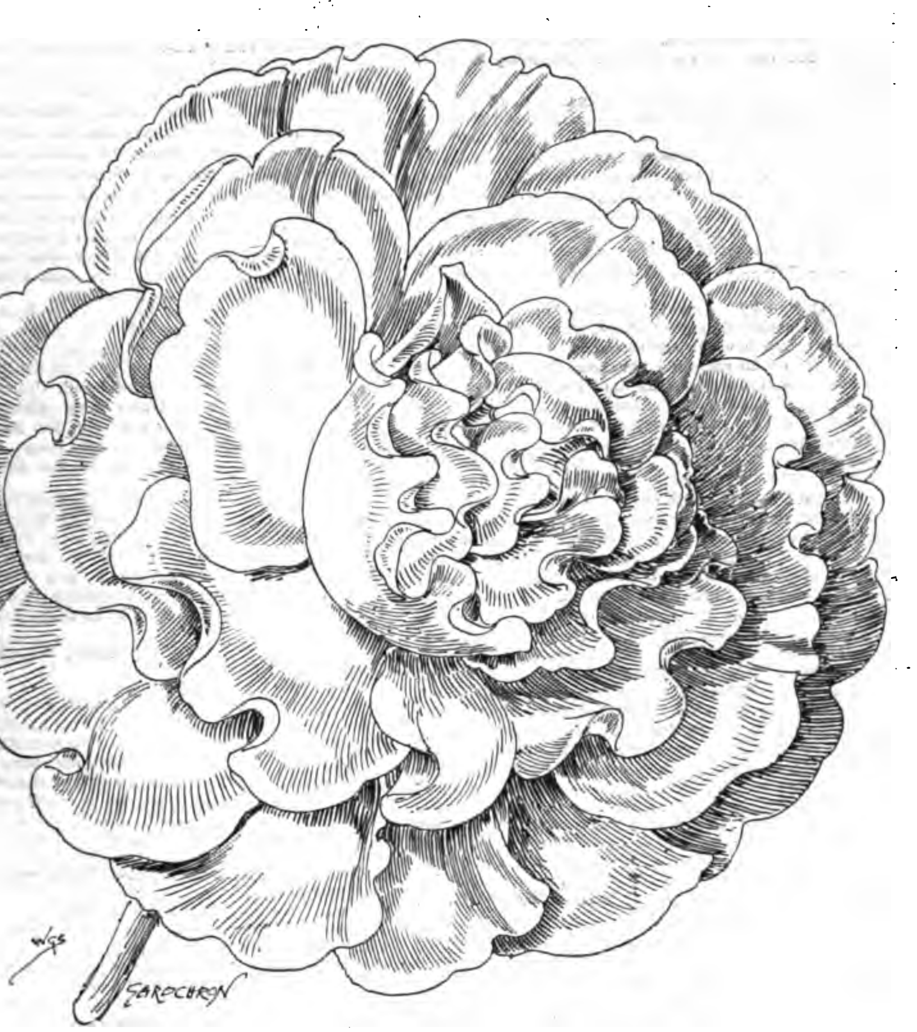


Fig. 127.—DOUBLE WHITE BEGONIA "MARY POPE": REAL SIZE.

(Exhibited at the Temple Show by Mr. T. S. Ware. See p. 368.)

Next Malcolm S. Cooke, Kingston Hill (gr., Mr. Buckle), staged a nice collection of Odontoglossums, including fine O. crispum, O. Halli, O. Pescatorei; also good Miltonia vexillaria, Lælia purpurata, Masdevallias, Cypripediums, &c.

Elevated at the back, Major Joicey, Sunningdale Park, Sunningdale (gr., Mr. Fred. J. Thorne), exhibited two of the best examples of fine cultivation in the show, viz., Luddemannia Lehmanni, with four heavy pendent stripes of orange-coloured flowers, forty to sixty on each raceme, and two more spikes coming; and a grand plant of the yellow-coloured Angulos Cloweaii, with nineteen fine blooms, both securing Cultural Commendation.

J. Rutherford, Esq., M.P., Beardwood, Blackburn, staged a pretty group, made up principally of very remarkably fine forms of Cattleya Mossiæ, all the specimens being well grown and well-flowered. In the centre of the group was a grand new form of Lælio-Cattleya × Aphrodite (C. Mendeli × L. purpurata), named L.-C. × Aphrodite "Ruth." A glorious white flower, the tube of the lip tinged with yellow, and the fine front lobe developed as in C. Mendeli, and exhibiting the rich rose-crimson tint, as in good forms of that species—a charming hybrid. Of the Cattleya Mossiæ, C. M. gloriosa, with its richly-coloured large-lipped flowers was one of the best Mossiæs shown, and the C. M. Wagneri, C. M. Reineckiana, and C. M. Rappartiana, very remarkable white forms.

Walter C. Walker, Esq., Winchmore Hill (gr., Mr. Geo. Cragg), staged an effective collection, made up of good Cattleya Skinneri, C. citrina, and other Cattleyas; Miltonia vexillaria, Odontoglossum Harryanum, Dendrobium Bensoniæ, &c.

Next M. Jules Hye-Leysen, Coupure, Ghent (gr., M. Coen), had a case of very fine Odontoglossums, flowered in his usual admirable manner. The centre of attraction was the noble plant of O. crispum augustum, illustrated in the *Gardeners' Chronicle*, May 23, 1896, and then described as one of the finest of blotched crispums, a character which it well sustains. When illustrated, the figure was said to be an exaggeration, but, on comparison to-day, we are happy to say it is an exact representation. Another remarkable form was O. crispum "Perle du Congo," a blush-tinted flower of peculiar form, the upper sepal having a distinct reddish band up the centre, and the other sepals and petals quaintly spotted, the latter being crimped; several other fine forms of O. crispum were included; also Odontoglossum Halli Lairesseanum, of an uniform greenish-yellow. A fine O. × excellens, Miltonia vexillaria Chelseiensis, Lælio-Cattleya × Hippolita, with many flowers on the spike, and Lælio-Cattleya × Mrs. Albert Hye, one of the finest and richest-coloured forms of L.-C. × Aphrodite (Eudora).

Finishing the arrangements on that side of the tent, came a very pretty arrangement of Orchids, set up with Ferns and foliage-plants, sent by Messrs. Jas. Backhouse & Son of York, remarkable being a very handsomely spotted form of O. crispum, a fine specimen of Sobralia macrantha, and one of S. Amesiæ, Cattleya Mendeli, very fine; Cypripedium bellatulum, Lælia tenebrosa, &c.

On the other side, Messrs. B. S. Williams & Son, Holloway, staged an extensive group, in which were eighteen distinct forms of Cattleya Mossiæ, and nearly as many of C. Mendeli; some fine Oncidium Marshallianum, O. sarcodes, and O. concolor; a fine bit of Odontoglossum crispum, and most of the other showy species, including O. × Edithæ, a pretty hybrid; Calanthe veratrifolia, C. Sanderiana, Miltonia stellata, Cœlogyne Massangeana, Anguloa Clowesii, Dendrobium suavissimum, and other Dendrobiums, Vanda suavis, V. tricolor, V. teres, a fine lot of Lælia purpurata, and a good representative collection of the Cypripediums of the season.

Messrs. Stanley-Mobbs & Ashton, Southgate, had an extensive group, and one of the best arranged, the outline being relieved by two elevated cork-work stands, the pockets of which contained good Odontoglossum crispum, Miltonia vexillaria, and other Orchids, the back-row between the stands being filled in with grand Oncidium Marshallianum, O. sarcodes, O. varicosum, and other elegant species. In this group the forms of Lælia purpurata were fine; a very remarkable white variety (which, however, was not perfectly developed), named L. p. Ashtoni, and in the Cattleyas, C. Mossiæ Mrs. C. H. Feilling, a very richly-coloured variety, of perfect form, was the best. C. Mendeli "Constance," a pretty white form was remarkable, and noteworthy were Epidendrum hastatum, Cypripedium "Gertrude Hollington," and some remarkably fine Lælia tenebrosa.

Mr. Jas. Cypher, Cheltenham, had an extensive group replete with good things, the background carried up effectively with Oncidium Marshallianum, O. sarcodes, O. ampliatum, Epidendrum radicans, E. × O'Brienianum, and other elegant species. The forms of Lælia purpurata and the Cattleyas were specially good.

Messrs. Charlesworth & Co., Heaton, Bradford, staged an excellent group in which the strain of Odontoglossum crispum said to come from a new district, was remarkable, some of them showing excellent and distinct features. Among the best Cattleya Mossiæ were C. M. Reineckiana and C. M. aurea magnifica, and the varieties of Lælia purpurata gave as the best L. p. atro-rubens, L. p. Russelliana maxima, and L. p. fulgens, all good. Other good things in this group were Cypripedium × Gertrude Hollington; the curious Lælia × cinnabrosa; Epi-Lælia × Heatonensis (L. cinnabarina × E. × O'Brieniana); Epi-Lælia × radico-purpurata; Vanda teres gigantea; Odontoglossum × Adrianæ; Miltonia vexillaria Empress Augusta Victoria; Lælio-Cattleya × Hippolyta, of specially bright colour; a fine strain of Cattleya Schilleriana, Oncidium phymatochilum, Masdevallia × Courtauldiana, and other Masdevallias.

Messrs. Hugh Low & Co., Enfield, well furnished the remainder of the centre stage, with one of the best and best-arranged groups they have ever exhibited, and containing all important plants, and no ordinary small "padding." Cattleya Mossiæ "Beauty of Bush Hill," was a truly magnificent richly-coloured, large flower, exhibiting a very extraordinary veining on the sepals and petals, and a peculiar rose-purple feather up the petals; a remarkable exhibit. The other forms of C. Mossiæ were of the best strain; C. M. Wagneri, Low's variety, of a peculiar white, with cowslip-yellow disc. The fine strain of Cattleya Mendeli, culminated in C. M. Perfection, well worthy of its name, blush-white, with ruby-crimson lip, and among the many specimens of Oncidium ampliatum, was O. a. citrinum, totally different in colour to the type. Lælia purpurata in this group were also good, and in it were fine Odontoglossums and Cypripediums, &c.

In the next tent, Messrs. F. Sander & Co., of St. Albans and Bruges, staged a grand display, having a table some 60 feet in length, well displaying their grand strain of Odontoglossum crispum, which certainly have an uniformly fine character in large well-shaped blooms, prolific in heavily blotched forms. The finest example of the pure white form of this strain was enclosed in a glass case with some ornamental foliage, and bore a grand spike of large flowers of the O. c. Duchess type, but superior to that one. Along the table were noted small groups of selected hybrids of this strain, also excellent forms of O. × Wilckeanum, O. × Andersonianum, and O. × Ruckerianum, some of them being profusely and others sparsely spotted. Selecting only the most remarkable plants, we noted a very handsome form of Sophro-Lælia × Marriotti with clear chrome-yellow flowers; a Sophro-Cattleya between S. grandiflora and C. Acklandiæ, with very distinct and pretty bright red flowers; a new hybrid between Cattleya Mossiæ and Lælia tenebrosa, with very handsome flowers of the form of those of L. tenebrosa, and colours of C. Mossiæ; a fine strain of Cattleya Mossiæ, one of the plants having six flowers on a spike, a number perhaps not previously attained; a batch of the pretty Dendrobium atroviolaceum, the noble Miltonia × Bleuana splendens, a fine specimen of Cœlogyne Dayana, with about fifty spikes; the favourite Cypripedium callosum Sanderæ, and the pretty and still not common C. Sanderianum, with four flowers on a spike; C. × conco-bellatulum, and C. × barbato-bellatulum; the remarkable Maxillaria Mooreana, with quaint, large dark green flower; good good forms of Odontoglossum × Adrianæ, a fine plant of Epiphronitis × Veitchi, the singular Bulbophyllum barbigerum, Oncidium superbiens, a very large form of Odontoglossum maculatum, Lælio-Cattleya × Hippolyta, Dendrobium densiflorum Schroderi, D. Goldiei, and some superb forms of Miltonia vexillaria, &c.

Ludwig Mond, Esq., The Poplars, Avenue Road, St.

John's Wood (gr., Mr. J. O. Clark), staged a pretty and effectively-arranged group, to which the varieties of Odontoglossum citrosmum gave character. The largest plant bore four fine spikes, making it an effective centre to the group. Some excellent Odontoglossum crispum, O. Halli, and other Odontoglossums, Dendrobium Devonianum, and fine Cattleyas and Lælias, all arranged to show to the best advantage, were remarked.

Messrs. Linden, Brussels, had a large group, remarkable for the bewildering variations of Odontoglossums, among which it is difficult to describe where species end and varieties begin. Prominent were the fine forms of O. × Adrianæ, two very fine ones being O. × Adrianæ tigrinum, and O. × Argus; and associated with them was a very peculiar hybrid, with prettily-spotted flowers, probably between O. Hunnewellianum and O. odoratum. Among the large collection of forms of Odontoglossum crispum, both white and spotted, O. c. Miss Linden, a prettily-formed, heavily-blotched flower, was noted as being the best; O. c. "The Baby," was a grand flower, with large purple blotch in each segment. Among other specially noteworthy varieties were O. Pescatorei Miss Otelet, a very handsome bloom; O. × Cawenbergi, very showy; O. triumphans "Golden King," a bloom of a clear tawny yellowish hue; O. × cirrho-Halli, O. sceptrum nobilius, Miltonia vexillaria Lindeniæ, a noble variety, with very large flowers, attractively veined with rose-pink; M. v. Jupiter, of a delicate rose-pink; and a number of very singular-looking forms of O. × Wilckeanum and O. × Andersonianum.

H. T. Pitt, Esq., Stamford Hill (gr., Mr. T. Thurgood), showed Cattleya intermedia, "Rosslyn variety," which may be described as a blush-white C. i. Parthenia—very pretty.

Walter Cobb, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes), showed Miltonia vexillaria, "Dulcote variety," the prettiest bright dark rose form yet exhibited. Captain G. W. Law-Schofield, New-Hall-Hey, Rawtenstall (gr., Mr. Shill), showed Lælia purpurata "Annie Louise," a beautiful, finely-coloured flower with petals handsomely veined rose-purple.

Thos. Statter, Esq., Manchester (gr., Mr. Johnson), showed as Lælia purpurata "Statteriana" a similar variety; also the blue Dendrobium Victoria Regina. T. B. Haywood, Esq., Reigate (gr., Mr. C. J. Salter), showed Lælia purpurata "Mrs. Haywood," and Cattleya Mossiæ "Ajax," both good. A. Warburton, Esq., Vine House, Haslingden (gr., Mr. Lofthouse) sent Lælia cinnabrosa. M. Jules Ragot showed Lælia × Ragotiana (grandis × cinnabarina), with narrow orange-coloured flowers, several on a spike. C. L. N. Ingram, Esq. (gr., Mr. F. W. Bond), showed Lælio-Cattleya × Amazone (C. maxima × L. purpurata), a pretty light flower, and L. purpurata fulgens.

Floral Committee.

Present: Edward Mawley, Esq. (Chairman), and Messrs. C. J. Salter, H. B. May, S. A. de Graaff, Chas. Jeffries, J. W. Barr, Chas. T. Druery, R. Dean, C. Blick, Herbert J. Cutbush, John Laing, J. F. McLeod, E. Molyneux, Edwin Beckett, J. H. Fitt, E. T. Cook, Jas. Walker, W. Howe, D. B. Crane, J. Jennings, and R. Wilson Ker.

GROUPS.

In the tent which crosses the big one, containing Orchids, &c., in the middle of it, Messrs. W. Fromow & Sons, Sutton Court Nursery, Chiswick, put up a group of Japanese Acers, in nearly all the known varieties, as small plants, varying from 1½ to 5½ feet. A variety named sanguineum variegatum, which was shown only in small examples, was noted as remarkably attractive in tint, which in the young leaves is vivid-crimson and red-purple, the youngest ones being entirely of crimson; A. palmatum variegatum, A. involutum variegatum, A. palmatum roseo-marginatum, A. p. laciniatum, A. japonicum aureum, are the more remarkable in leaf tints, or in the form of the leaf. The group was agreeably set off by plants of the Bermuda Lily.

Messrs. Cripps & Sons, Nurserymen, Tunbridge Wells, had in the same tent a group of Acers, older examples of good varieties, but not containing novelties; many of the varieties showed their value as decorative plants for the cold conservatory, or as groups in the open, sunk in the turf or otherwise displayed.

Mr. J. Russell, Richmond Nurseries, Surrey, placed a group of Japanese Acers in considerable variety out-of-doors. Among the more remarkable, were the pretty Beech with a rose-tinted margin to the leaf (Fagus tricolor), the purple leaved Birch, silver variegated Sweet Chestnut, a handsome variety; a variegated Sycamore, variegated Ivies, with small and with large leaves; Tree-Ivies, made so by grafting, such as Hedera arborea dentata and others. One of his beds was filled with plants of Viburnum Opulus macrocephalum, and V. plicatum, one of the best, most abundantly flowered. The white and green-leaved Eurya japonica latifolia variegata was used effectively for an edging to the beds. The Japanese Viburnums are particularly nice as wall plants.

Messrs. Fisher, Son & Sibray, Royal Nurseries, Handsworth, Sheffield, had planted out a very extensive group of "picture-trees and shrubs," including the finest of the Japanese Acers—A. Negundo foliis variegatis, A. japonicum aureum, Andromeda japonica variegata, Quercus concordia, the yellow-foliaged Oak; Cupressus macrocarpa lutea, a variety that keeps its colour in age; Tree-Ivies in variety, which make nice stuff for facing shrubberies, and filling beds on the grass. These were shown in green and variegated forms; besides these were Hedera canariensis Crippsii, H. spectabilis, Silver Gem, Golden-blotched, &c. We remarked Ilex Wilsoni, established plants of which bear leaves bigger than those of Shepperdi; and not like that, it is a berry-bearing plant (First-class Certificate); and of Larix Kæmpferi, the Chinese Larch, a nice example in a pot, was shown.

L'Horticole Coloniale, Ltd., Brussels, General Director M. Lucien Linden, showed a group consisting of Hydrangea Hortensia Mariesii, small plants, with fine heads of bloom; H. Hortensia, with palest lilac flowers; H. paniculata, a well-flowered tall standard; Philadelphus Lemoinei Gerbe de Neige; Olearia stellulata, with dense cylindrical heads of white flowers, larger than those of the well-known O. Haasti. The group contained, besides these, Ghent Azaleas, Azalea mollis × sinensis N. Beets, flowers yellow and orange-crimson, a very showy thing; A. mollis albicans, with cream-coloured flowers; A. m. × sinensis Dr. Pasteur, with large corymbs of a soft orange colour; A. hybrida fl.-pl. Freya, a flower with a pale yellow and pink centre, &c.

In the big tent, Messrs. W. Cutbush & Son, Highgate and Barnet, staged a very extensive group, of which pink Carnations Souvenir de la Malmaison formed the middle groundwork, dwarf plants, possessing good blooms; isolated round groups of mixed varieties of Carnations and of Richardia Elliottiana stood prominently in the front, with a margin to the whole of Adiantums. The rear of the group consisted of Palms and Bamboos, fronted by numbers of Rose Crimson Rambler, Hoteia astilboides, and Mollis Azaleas in some variety. The whole was effective, as consisting of small plants.

Messrs. Geo. Jackman & Son, nurserymen, of Woking, Surrey, had a fine exhibit of large, globular-trained plants of the new hardy Clematis coccinea varieties, or rather hybrids with that species. The flowers have much similarity as regards shape, all being rather less closed, as in C. coccinea, some, indeed, spreading considerably; and the colours range from palest flesh, through pink, to purple of various shades. We think that these crosses form pretty decorative plants, not offending by reason of gaudiness or great size of blossoms. A few cut flowers of C. coccinea were shown for comparison sake.

An equal place of honour at the end of the tent was taken by Mr. W. Iceton, Granard Nursery, Putney, with a miscellaneous group, in which Araucarea excelsa, various Palms, Acer Negundo foliis variegatis, Bamboos, Dracæna Doucetti, Bermuda Lilies, Hydrangeas, Caladiums, Ericas, some very fine Lily of the Valley, a specialty of the nursery; and Asparagus plumosus formed the greater proportion of the plants shown.

Messrs. Richard Smith & Co., Worcester, presented their annual display of Clematis in pots; better bloomed, we thought, than ever. Where all was so excellent in variety, and culture so good, it seems invidious to name any one variety, still the varieties Sensation, Lawsoniana, Excelsior, Gloire de St. Julien, Anderson Henry, purpurea elegans, Grand Duchess, and Lord Nevill, would please the most exacting amateur-gardener. The group consisted of about a score of plants, spherical in form, and from 3 to 5 feet high.

A telling group of stove decorative plants, in which Anthuriums and Alocasias, with remarkably fine foliage, formed the main feature, was contributed by Messrs. Wills & Segar, florists, Onslow Place, South Kensington. We noted excellent examples of the following Anthuriums, viz., crystallinum, very perfect leaves; and Veitchi; and of Alocasias there were argyrea, with boldly-banded leaves; Sanderiana, Thibautiana, with light green veins and ribs, the intervening spaces being of a dark moss-green tint; Mortfontainensis, Lowii grandis, and metallica. Other plants in the group consisted of nine Nidularium fulgens, the glowing tint of the central leaves very telling; Phrynium variegatum, Dracæna Godseffiana, D. Goldieana, a fine piece of this difficult plant; Dieffenbachia Bausei; and of Palms standing at the back, were Martinezia Caryotifolia, Stevensonia grandifolia, Verschaffeltia splendens, interspread over all being Crotons, Marantas, Bamboos, &c.

One of the showiest and choicest groups consisting of flowering subjects, was that shown by Messrs. J. Veitch & Sons, Ltd., Royal Exotic Nursery, King's Road, Chelsea. We noted plants of hybrid Azalea mollis in much variety, Lemoine's Philadelphus Boule d'Argent, which has double flowers, Viburnum macrocephalum, Andromeda speciosa Cassinefolia, Cytisus scoparius aureo-variegatus, with white mealiness on the foliage; Hydrangea Hortensia Maresei (see fig. in supplement), Rhododendron hybridum, Prometheus and John Waterer, to give strong masses of bright colour; Lilac Mme. Lemoine, with small spikes of pure white flowers, Alstromeria pelegrina alba, Wistaria sinensis, as standards, Eremurus robustus, and E. r. Elwesianus, E. himalaicus, Hydrangea paniculata var. grandiflora, as standards, and quite effective as such. The back part consisted of Bamboos, and the front of small plants of Japanese Acers.

Messrs. Fisher, Son, & Sibray, showed a mixed group of good varieties of Lælia purpurata, Anthurium Scherzerianum, Handsworth variety; A. Andreanum atro-sanguineum, Alocasia argyrea, examples of Panax and Aralias, including a large one of A. pulchra; Dracæna Doucetti, Asparagus procumbens, small Palms, Azalea Miss Buiste, a small white-flowered, very floriferous variety; Cypripediums, Bertolonias, and Sonerilas.

ROSES.

There were rather more of these than usual, and in most cases the quality was beyond the average; but the excessive heat in the tents soon caused the best flowers to lose their freshness. There was little to choose between the groups of Messrs. W. Paul & Son, Messrs. G. Paul & Son, and Mr. C. Turner, all of which were first-rate, and well set up. H. P. "Tennyson," from Waltham Cross, is evidently a grand new Rose. The habit is good; flowers large and full, and of a clearer colour than Lady Mary Fitzwilliam. Empress Alexandra of Russia was also in good form, and certainly it stands out as one of the most distinct Roses we have. The peculiar shades of salmon and bronzy-red were most taking. We noticed in this group the climbing form of Mrs. W. J. Grant. Like most climbing sports, this is not so good as the normal variety. Clio, Madame Abel Chatenay, and Crimson Queen, were among the best cut blooms, occupying ten large boxes. All of the plants were good, especially Marquise de Litta, Souvenir du Rosieriste, Gounod, Spenser, and Souvenir de Madame E. Verdier. The last named will run K. A. Victoria very close when better known. A comparatively new variety, named Souvenir de President Carnot, is one of the best soft salmon flesh Roses we have. This was one of the best exhibits we have seen.

Mr. C. Turner, Slough, did not show any cut flowers this year, but had a grand group of plants that were well grown, and set up with great taste. Here again Souvenir de E. Verdier and Caroline Testout were most noticeable, while it is almost superfluous to add that Crimson Rambler was very prominent. Messrs. G. Paul & Son, Cheshunt, exhibited some good standards and dwarfs. Psyche, a new semi-double of soft pink shades is showy, and likely to prove a good companion to Crimson Rambler, which it resembles in growth and in the form of the truss. Dawn, another new Rose from Cheshunt, is also good; this is semi-double, and a very bright flesh-pink. Elsie Fugier and Madame de Watteville are always well shown by Messrs. Paul & Son; nor must Carmine Pillar, with its bright carmine blossoms, be omitted.

A group of plants, and eight large boxes of cut Roses, came from Messrs. Rumsey & Son, Waltham Cross, but they were not of the same quality as those already mentioned.

A very bright lot of small plants came from Mr. John Russell, Richmond Nursery, Richmond.

A new Tea Rose, named Sunrise, came from Mr. G. W. Piper, The Nurseries, Uckfield, who staged six of "The Princess" stands, in the same style as was recently seen at the Drill Hall Meetings. It is one of the most distinct Roses we have, and its perfume was remarked by all. Unfortunately, the great heat caused the flowers to droop quickly. Probably this is the most distinct new Rose of the year, both the colouring and deep bronzy foliage being unique, and attracting considerable attention. It was figured in our issue for May 20.

Those who have attended the Temple Show during the past few years will remember the grand cut Roses from Mr. G. Mount, Canterbury, and who this year staged quite 300 blooms of perfect form; Mrs. W. J. Grant, Bridesmaid, Catherine Mermet, Clio, La France, and Caroline Testout were superb. Mr. Mount cuts his flowers with no niggardly hand, and many of those staged had stems fully 2 feet in length.

There was a scarcity of new Roses, Tennyson, Sunrise, Dawn, and Psyche being the best.

CACTACEOUS PLANTS.

Messrs. Jas. Veitch & Sons, Royal Exotic Nurseries, King's Road, Chelsea, again made a large exhibit of Phyllocacti in bloom. In *Gardeners' Chronicle*, June 4, 1898, we gave a capital illustration of the group exhibited last year. Awards of Merit were recommended to three varieties on the present occasion, and others of remarkable beauty were Ursula, orange-red in colour; Marsus, distinct pink; Plato, deep crimson; Hecla, Cooperi, white; Favourite, pink; La Belle, white; and many others. There were upwards of 500 plants.

HIPPEASTRUMS.

Captain Holford, Westonbirt House, Tetbury (gr., Mr. Chapman), exhibited one half-dozen of his marvellous Hippeastrums. Flying Fox had inverse flowers of deep crimson; Desmond is a very light-coloured flower of compact imbricate form, lined in places with rich crimson; Holocaust is a bright flower, of large size, somewhat spreading, scarlet, with considerable white in the throat; Templar, of the type of Desmond, but the petals are more pointed; The Czar is after the style of Flying Fox, but in colour is very much deeper. Messrs. Paul & Sons also showed some fine Hippeastrums.

CANNAS.

Messrs. H. Cannell & Sons, Swanley, Kent, made an exhibit of Cannas in the magnificent manner we have become accustomed to expect from Swanley. The collection included the very best of the new Continental "Gladiolus-like" varieties, and the cultivation given the plants enabled one to see them in a dwarf and vigorous condition. Some of the more distinct and noteworthy in the group staged were aurea, pure yellow; Duchess of York, yellow, spotted with red; Aurore, Madame Pichon, Burbank, one of the very large but rather flimsy flowers; the well-known Queen Charlotte, Duchess of York, a richly spotted variety; Comte de Bouchard, another fine variety of a similar type; Madame Crozy, Lawrence D. Anthony Crozy, Leon Vassilier, Robert Christie, &c.

BEGONIAS.

The tuberous-rooted Begonias formed a very bright feature in tent No. 4. There were several large trade displays, composed of abundantly flowered plants.

Mr. Thos. S. Ware (Ltd.), Hale Farm Nurseries, Tottenham, made one of the grandest displays with tuberous-rooted Begonias ever seen at the Temple Show. Almost all of the varieties shown were double-flowering ones, and two of these were sketched by our artist on the first day of the exhibition.

In addition to the four splendid varieties described under

"Awards," there were Jessie Pope, a flower of very remarkable form and colour, very suggestive of a first class flower of Souvenir de la Malmaison Carnation. The petals have enormous substance and breadth, and the margins are uncommonly wavy. The exact size of the flower and its characteristic form may be seen on reference to fig. 126. In colour it is pale salmon pink; as shown the plant has a perfect habit except that the weight of the blooms renders staking a necessity. The foliage is of moderate size and deep green in colour. The other variety is Mary Pope, a pure white flower. Other fine varieties in this exhibit were Pride of Kent, carmine with whitish centre; Miss Alice Beer, bright carmine, with a few white spots sparsely spread over the petals; Prima Donna, salmon scarlet, very large flower, lighter in colour towards centre; Duke of York, intense crimson, moderate in size; Sylvia, a delightful clear rose colour; Mrs. Dunbar Wood, pure white, very wavy in outline; Golden Queen of England, rich yellow; Her Majesty, pure white; Duchess of Devonshire, pink; Miss Barbara Ray, coppery red. The few singles included were good, but not of so noteworthy a character as the doubles, which will be remembered as one of the distinguishing features of this show.

Mr. H. J. Jones, Ryecroft Nursery, Hither Green, London, S.E., had a group of Begonias in which the single varieties were the more fully represented, and the plants were interspersed with Adiantum and other ferns. Some of the best varieties in the stand were Mrs. T. Lunt, rich rose colour; Mrs. Beerbohm Tree, white; May Mauser, white with rose margins; Admiration, deep reddish-yellow; Sunlight, yellow; and Hero of Omdurman, scarlet, &c.

Messrs. Jno. Laing & Sons, Stanstead Park Nurseries, London, S.E., had a very carefully arranged group of double and single-flowered varieties, and neither section preponderated. The exhibit was very closely packed, like all the others, and a few of the varieties were named, and of doubles we noticed Picotee, Lady Rothschild, rich apricot colour; The Queen, white; Duke of Fife, a magenta shade of carmine; Lady E. Spencer Churchill, a picotee type of flower; and Duchess of Sutherland, pure white. Messrs. Laing have exhibited Begonias with such success for so long a time, that the excellence of their strain is well known.

Messrs. H. Cannell & Sons between their exhibits of Gloxinias and Cannas had also a pretty group of Begonias, including single and double flowering varieties in about equal proportions. Very pretty doubles were Lady Camden, rich salmon; Snow Wreath, Future King, crimson; Lady Sophie Scott, rose; and Commodore Dewey, crimson; Seymour Lucas, an intensely crimson single variety was very good; Miss Edith Villiers, pink, and others.

Messrs. Webb & Sons, Wordsley, Stourbridge, had also a small group of unnamed single and double-flowered tuberous-rooted Begonias.

Messrs. F. Sander & Co., St. Albans, showed a few pretty little plants of ornamental-leaved Begonias, the varietal names being Conspicua, Gemmata, and Silver Bronze, all of them being very desirable plants.

CALADIUMS.

These handsome foliage plants always make one of the most prominent features in the shows at the Temple, and in the schedule Caladiums appeared amongst those that might be allowed the maximum amount of space, viz., 400 square feet. Though this seems very considerable in proportion to that permitted to Carnations and other popular plants, the large trade growers not only easily fill all the space they can obtain, but would gladly have more. There has never been a poor exhibit of Caladiums staged.

The best amateur's collection of Caladiums was one from Pantia Ralli, Esq., Ashstead Park, Epsom (gr., Mr. G. J. Hunt), which was rightly accorded a prominent position in tent No. 4. All of the plants in this exhibit were good, and they represented such first-rate varieties as Baron A. de Rothschild, Lord Derby, Orpheus, Sir Henry Irving, Silver Cloud (a novelty of three seasons ago), Silver Queen, Sir Julian Goldsmid, J. Pierpont Morgan (one of Messrs. Veitch's novelties in 1897), &c. One named Mr. Pantia Ralli was a handsome-leaved variety of the spotted type.

A little corner group of Caladiums from R. Hoffman, Esq., Thurlow Lodge, West Dulwich, was a very commendable amateur's exhibit, which, though less extensive than the magnificent trade displays, and though the plants were unnamed, included a quantity of moderate-sized plants of good varieties.

One of the best exhibits of Caladiums on this occasion was one from Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea. The plants, though not larger in size than have been staged previously at the Temple, were very perfect examples of good cultivation and high colouring. The disposition of the plants left nothing to be desired from the standpoint of effect; each plant could be seen to the best advantage, was absolutely clear of its neighbour, and displayed the habit of the plant, the form of leaf and colouring perfectly. The centre plant was a marvellously-good specimen of Rose Laing, a very pale-coloured leaf, with a rose-blush hue over the centre, and mottled with green towards the margins. At the back of the group were large specimens of Mrs. Harry Veitch, B. S. Williams, Gaspard Crayer, Baron Adolphe de Rothschild, Triomphe de Comte, Madame John Box, and Louis A. Van Houtte. Then there were candidum, Marquis of Camden, exceptionally coloured; Madame E. Pynaert, a self-coloured leaf of handsome appearance; Pantia Ralli, a large bronzy-green leaf, with whitish spots; and Oriflamme, very bright centre of leaf, with bronzy-green margins. Lady Mosely and Sir Stafford Northcote are two fine varieties, and recent novelties of Messrs. Veitch. The beautiful Ibis Rouge was represented by a plant of moderate size. Sir Edwin Smith is a large oval, flat leaf, with high-coloured nerves, a bronzy-green surface, and a few rather large, very irregular white spots. A particularly well-coloured plant of Madame Schmidt was noticed. The Mikado is, perhaps, the darkest coloured variety of Caladium obtainable, and very sombre in appearance. May Archer, a yellowish-white leaf with red margins to the ribs, and Mrs. C. Archer, a very bright self-coloured variety, are the newest in Messrs. Veitch's.

Messrs. John Laing & Sons, Stanstead Park Nurseries, Forest Hill, London, S.E., had a beautiful exhibit of Caladiums, most of them being of very superior merit, and though staged next to Messrs. Veitch & Sons' group of flowering plants, they suffered less in comparison than might have been expected. There were very fine plants of Gaspard Crayer, Triomphe de Comte, excellent, candidum, Baron A. de Rothschild, Baron de Mamore, Madame J. Box, Duchesse de Montemart, a pale yellow or white-leaved variety; Louis A. Van Houtte, a well-known, deeply self-coloured variety; and a very charming plant of Rose Laing.

Of novelties we noticed Illustration with leaves having a white or green ground, spotted, and occasionally suffused with red; Alexander III., a deep, but bright ruby-red-leaved variety of decided merit and good habit; Itapocii, a variety with green-and-red leaves, margined with pure green. There were pretty plants of Silver Cloud, Gaston Chandon, Golden Queen, and Ladas, among the smaller-sized plants.

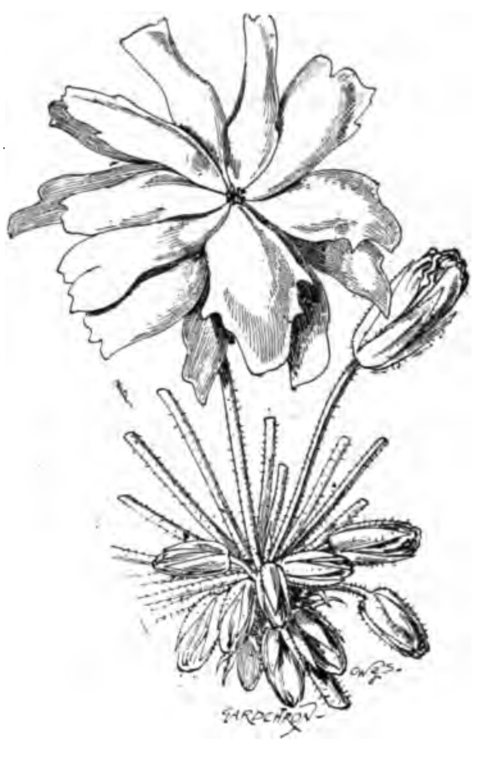


Fig. 128.—"Fire Dragon" Cactus Pelargonium: colour brilliant scarlet.

(As exhibited at the Temple Show by Mr. Ed. S. Powell.)

Messrs. J. Peed & Sons, Roupell Park Nurseries, West Norwood, Surrey, who have staged Caladiums wonderfully well at the Temple Show for some years past, made a grand exhibit. Not only were Messrs. Peed's Caladiums of very large size, some of them being shown in 12-inch to 14-inch pots, but they were grown in the same pots during the whole season. Some of the largest specimens represented varieties such as Madame J. Box, Sir William Broadbent, Mrs. Harry Veitch, candidum, the best specimen of Silver Cloud that we have seen, John Peed, Rose Laing, Roncador, Oriflamme, &c. There were smaller examples of Marie Mitjana, a self-coloured variety exceptionally well shown; Argentine, pale green and white; Mrs. John Peed, President M. de la Devansaye, W. E. Gladstone (new), a bronzy-green leaf with very deeply coloured ribs; Ibis Rose, Ibis Rouge, H. J. Chapman (new), a delicate looking variety of much merit, and many others.

DECORATIVE PLANTS IN POTS, &c.

CALCEOLARIAS.

Being the season of the Calceolaria, it was to be expected that several collections would put in an appearance.

At one end of the central Orchid stage in the large tent, Messrs. Sutton & Sons, of Reading, had a grand group of their fine strain, remarkable alike for dwarf, compact growth, brilliancy of tint, floriferousness and variety. Some finely-marbled, white-ground varieties were among them; and there were yellow and crimson selfs. The leading feature about present-day Calceolarias is the appearance of new combinations of colours. Some five dozen or so plants formed this attractive group.

Messrs. Webb & Sons, Wordsley, Stourbridge, had a table collection of fifty good specimens or so, a very good strain; but the growth of some of the plants a little taller than in the preceding group; though apparently not showing quite so much variation.

Messrs. James Carter & Co., seedsmen, High Holborn, had a table group of some hundred plants of high quality and variety, well grown and bloomed; in addition, they had a ground group of a good yellow self, which it is said comes true from seed from carefully-fertilised flowers. Here and there a few plants of Calceolarias appeared in miscellaneous collections of plants.

CARNATIONS

were to the fore in good quantity, the Malmaison type being in the ascendant. It appears possible that the increase in size in the ordinary Carnations will bring the types so closely together, that one type will be absorbed by the other.

In the Orchid-tent Mr. C. Blick, gr. to M. R. Smith, Esq., The Warren, Hayes, Kent, had a semi-circular group, prominent in which were several new Malmaisons, viz., Horace Hutchinson, which would certainly have received an Award of Merit, only that wire supports were used to keep the flowers in position, which is contrary to regulations; this is a bright crimson self, of excellent form. In addition there were Juliette, clear soft rose; King Oscar, pale red, intermediate in tint between the two preceding; Cecilia, a very fine large yellow; Baldwin, a large soft pink self, very pleasing; Mrs. Trelawny, pale scarlet; Calypso, delicate blush; Nautilus, a little deeper in tint; Mrs. Martin Smith, deeper still in tint; and others.

Messrs. F. Sander & Co. had three new varieties of Malmaison Carnations, viz., J. Coles, bright crimson, the flowers large but somewhat loose; Ivanhoe, not quite so dark, more of rose and less of crimson; and Lily Measures, pale rose or deep rosy pink.

Messrs. W. Cutbush & Son, nurserymen, Highgate, had a large group on the floor, mainly composed of a bed of Malmaison Carnation Princess of Wales, with two large and two smaller mounds of Carnations at certain points. Of new varieties, there were Henry James, deep reddish-rose, fine in petal; Herbert J. Cutbush, bright crimson, fine in petal; and Lady Ulrica, pale rose. Of older varieties, there were Calypso, Queen of Buffs, La Violette, deep pink on a cream ground; Sundridge, pale bright scarlet, fine petal; Germania, &c.

Mr. C. Turner, Royal Nursery, Slough, had a group comprising Sir Bevys, deep crimson self; Agamemnon, maroon; Miss Sophy Graham, soft salmon-pink; Rizzio, yellow, &c.

From Mr. Sanders, gr. to A. de Rothschild, Esq., Halton, Bucks, came two new Malmaison varieties, viz., Alfred de Rothschild, bright red; and Halstead, pale red, both of probable good character, but not presented in good character.

AZALEAS AND RHODODENDRONS.

Messrs. Cuthbert (R. & G.), Southgate, staged a most effective group of pontica and mollis varieties, which, by reason of its position, was seen to the best possible advantage. The plants were profusely flowered, the sulphur, creamy-whites, and the shades of salmon and orange, were specially attractive. The most striking were Charles Rivers, Phidias, Hugo Koster, Emily Liebig, Anthony Koster (fine), Rudyard Kipling, Aida, and Comte de Quincy.

Mr. John Russell, Richmond, also staged an excellent exhibit; the plants were not, however, quite so compact in growth as the former, but the shades of colour and variety were equally as good. The best were Norma and General Brailmont.

Mr. Chas. Turner staged a small group of the indica variety, which contained a few good plants; but, on the whole, they were but shades of the specimens of twenty years back.

Messrs. John Waterer & Sons staged a fine lot of well-flowered, medium-sized plants, many of which bore fine trusses; the best were Duchess of Connaught, Cynthia, Pink Pearl (extra fine), Marchioness of Lansdowne, and Sappho.

DRACÆNAS, ALOCASIAS, ETC.

Messrs. F. Sander & Co. showed a fine specimen of Dracæna Sanderiana, in first-rate character; D. Godseffiana was also in evidence in the same collection.

Mr. Wm. Bull, Chelsea, had a small group of Dracæna Victoria, a very fine form of D. Lindeni, the variegation being better defined, small plants being in excellent character. Other well-grown Dracænas were to be seen in the mixed groups of plants.

Messrs. Sander & Co. staged Alocasia spectabilis, like A. Lowii, but of better habit; also A. spectabilis nana.

ANTHURIUMS.

Messrs. F. Sander & Co. showed a small group, consisting chiefly of the Rothschildianum vars. of A. Scherzerianum, varying in the intensity of the crimson spots and blotches, all bearing fine spathes. Also A. Sanderæ, a form of A. Andreanum; a specially fine form of A. Scherzerianum was also shown, with an enormous spathe nearly 9 inches in length.

HARDY HERBACEOUS PLANTS, &c.

These were as usual very largely represented, and in great variety, commencing at the western end of the long tent on the north side.

Messrs. Wallace & Co., nurserymen, Colchester, had a group of Lilies in pots on the ground, and also cut flowers on a table. Among the former were L. × Marhan, Martagon × Hansoni, a distinct, dark-flowered form; × Dalhanson dalmaticum × Hansoni; Hansoni, in fine character; excelsum, very fine; giganteum, varieties of umbellatum and Thunbergianum, &c.; also hardy Cypripediums, such as spectabile, pubescens, very fine, acaule and montanum. Some very fine imported Pæonies from Japan, Calochorti, Brodiæas, Sparaxis: a variety named Fire King was very fine. Ixias, Iris of sorts, &c., a very interesting collection.

Messrs. T. S. Ware & Co. (Ltd.), Hall Farm Nurseries, Tottenham, had a collection of plants in pots and also cut specimens, including Lilium Harrisii, Spiræas, the double scarlet Geum, Cytisus scoparius Andreanus, Pæonies, hardy Cypripediums, Pyrethrums, Primula japonica, hardy Azaleas, Ononis rotundifolia, Anemone alpina sulphurea, Iris, Trollius, &c.

Messrs. G. Jackman & Son, nurserymen, Woking, who had an interesting collection, including Iris, Tritonia, Pæonies, Pyrethrums, Uvularia grandiflora, Incarvillea Delavayi, Lilacs, Aquilegias, Chrysogonum virginianum, Ononis rotundifolia, Campanula glomerata alba, Anemone sylvestris flore-pleno, Papaver nudicaule in variety, &c.

A very good collection was also staged by Messrs. Paul & Son, Old Nurseries, Cheshunt, which included some of the leading varieties of new Lilacs, viz., Madame Lemoine, Alphonse Lavallée, President Grévy, alba grandiflora, Madame Kreuter, Souvenir de Ludovic Späth, a grand dark variety, and President Carnot. Pæonies, Iris, Pyrethrums, pretty Alpines in baskets, Aquilegias, Tulips, Rhododendrons, Corydalis nobilis, &c.

Some fine flowering heads of Myosotidium nobile were staged by Mr. J. Stow, gr. to R. H. Fremlin, Esq., Wateringbury, Maidstone, which were greatly admired, and were the only examples in the show.

Mr. Jannoch, Dersingham, near Sandringham, had bunches of his fine strain of Lily of the Valley, and in another part of the show, Mr. W. Poupart, Marsh Farm, Twickenham, had superb examples of a very fine giant variety.

Messrs. Barr & Son had about twenty feet run of tabling arranged as an Alpine bank, on which had been planted a number of interesting subjects, but there was a great want of proper naming, to the disappointment of many. In addition there was a large bank, mainly of cut flowers, including various Poppies, Narcissus, Pyrethrums, Anemone palmata alba, A. sylvestris, and its double form; Trollius japonicus florepleno, Sweet Peas, Pæonies, Ixias, Sparaxis, early flowering Gladiolus, Iris of various types, &c. Probably the choicest collection of hardy plants came from Mr. M. Pritchard, Nurseryman Christchurch, who had plants and cut blooms both prominent being Cytisus purpureus incarnatus; Gypsophila cerastioides, a dwarf, white flowered plant, Asperula hirta, Gentiana verna, Linaria hepaticæfolia, Trollius Orange Globe, very fine; Phlox setacea, Vivid, Erica vulgaris aurea, Achillea mongolica, Spiræa Aruncus, var. Kneiffa, Hemerocallis Middendorfi, Dianthus alpinus, Pyrethrums, Erigeron aurantiacus, Lathyrus Sibthorpi, a very fine Everlasting Pea, Ourisia coccinea, &c.

Mr. Amos Perry, Nurseryman, Winchmore Hill, also staged an interesting collection, which included Phlox Canadensis, Tulips, Cytisus scoparius Andreanus, Delphinium nudicaule, Primula luteola, Arenaria grandiflora, Aquilegia Stuarti, A. cœrulea, &c. Trollius Fortunei, fl. pl., Globularia vulgaris, Ramondia pyrenaica, &c.

Mr. W. J. Godfrey, Nurseryman, Exmouth, had a collection of new forms of Papaver orientale, of the Blush Queen type, a few of them of decided promise, but they had suffered on the long journey, the best are Devonshire Lass, bronzy salmon; A. W. Chillery, a pleasing pink, and Admiration, a kind of rose-tinted crushed Strawberry tint.

The Guildford Hardy Plant Company had a very attractive arrangement in the form of an Alpine Garden, backed harmoniously by various dwarf shrubs. None of the subjects were named, but simply under number, which appeared to perplex visitors, who were desirous of identifying certain subjects.

Messrs. James Veitch & Sons had a group of Primula japonica in variety; and one of hybrid Aquilegias, edged with Hydrangea Mariesii.

PANSIES AND VIOLAS.

Messrs. Isaac House & Son, Westbury-on-Trym, Bristol, who are specialists in Pansies, had a collection of bunches of fancy varieties, prominent among them H. A. Stewart, James Cambell, D. S. McLennan, Mary Kay, Col. Buchannan, W. H. Clark, D. G. McKay, John Miller, James Maxwell, Mrs. J. Smellie; also baskets of fine fancy varieties, and also of Violas.

Mr. W. Sydenham, Tamworth, set up four dozen sprays of pretty Violas; the leading varieties, Mrs. R. N. Mitchell, Sir Visto, Blanche, Ethelward, Kingcup, Charm, The Mearns, Lizzie Paul, Sydney, Symphony, Queenie, Pembroke, W. Haig, Acme, Devonshire Cream, &c.; also six dozen of fine fancy Pansies on boards.

Messrs. J. Cheal & Sons, Nurserymen, Crawley, also had a collection of Violas set up in sprays on boards, arranged in panels and in groups, with Ferns and Moss, and with them were a few hardy flowers of various kinds.

Messrs. R. H. Bath & Co. (Ltd.), Wisbech, also had a number of fine blooms of Fancy Pansies, and a somewhat unusual sight in May, Cactus-Dahlias; and in addition, also Carnations Duke of York, Henry Gibb, and others, together with Iris, &c.

PÆONIES.

While blooms of these appeared in several collections of hardy flowers, the largest and most comprehensive group was staged by Messrs. Kelway & Sons, nurserymen, Langport. Among the newer varieties were Cecil Rhodes, rich rosy salmon; Ella C. Stubbs, a large white; Julius Cæsar, shaded crimson; Alchemist, deep crimson purple; Critis, salmon-pink; Diamond Jubilee, maroon, margined with white, with white stripes on the petal edges; William Robinson, white, with rosy-purple shading round the centre; Perosi, pale pinkish rose; Duchess of Marlborough, blush, with deeper centre; Mrs. William Kelway, large white; Lady Skelmersdale, delicate blush; Lord Kitchener, shining maroon; Lord Dunraven, pinkish rose; Henry Irving, maroon; Orme, maroon crimson; a fine bank of bunches of the same, and in addition such subjects as Eremurus himalaicus, Aquilegia cœrulea, Hippeastrums, &c.

Captain Forrens, Baston Manor, Hayes, had three fine varieties of Pæonies, imported from Japan; viz., a large white, a rosy salmon, and a maroon-purple.

TULIPS.

Messrs. Barr & Sons were the only exhibitors of these in anything like a representative collection. The lateness of the season was seen in the collection of late florists' Tulips they staged, which included flowered-bizarre Dr. Hardy, flowered-byblœmen Adonis and Talisman; flowered Roses, Kate Connor, Heroine and Mabel, and several breeders, such as Goldfinder, Talisman, Mabel, &c.; and of the so-called Darwin breeders, Fairy Queen, Hecla, The Sultan, Loveliness, &c.

FERNS.

In an imposing group many large specimens were shown by Messrs. Hill & Son, Lower Edmonton, London, and elevated on tall pedestals, and the utmost use was made of the limited space allowed. The whole group was well arranged, and all the plants were remarkably fresh and healthy. Of the larger specimens were Nephrolepis nigrescens tripinnatifida, Cibotium Scheidei, Asplenium caudatum (a very fine Fern for an elevated position); Davallia Mooreana, and a fine mass of Platycerium alcicorne; of Adiantum the tinted varieties were well represented, macrophyllum and its variety bipinnatum being very good; tinctum, cyclosorum, and others. Of those which do not show the bright tints, A. capillus-veneris imbricatum, Mariesii, Williamsii, mundulum, and many others were well shown. Davallias: of these the distinct and rare D. aculeata was represented by a fine specimen, tenuifolia Veitchi; immersa, solida, and alpina were also prominent. Aspleniums: of these marginatum, Hilli (a new variety of the bulbiferum type), nidus, esculentum, and, ornatum were prominent. Polypodiums included Schneideri, Irioides lingua, lingua heteractis, and a very fine plant of albo-punctatissimum. Platyceriums Willincki and æthiopicum, were prominent; of Pteris a fine basket of tricolor was shown, as well as Victoriæ, rubricaulis, and many others. Others worthy of note were Litobrochia vespertilionis, Aglaiomorpha Meyeriana, Goniophlebium subauriculatum, Gymnogrammas of sorts, Anemia rotundifolia, Lastreas, including the brightly-coloured erythrosora, Lygodiums, and many others, the whole forming a most interesting and attractive group.

In Mr. H. B. May's group from Dyson's Road Nursery, Upper Edmonton, pedestals were also used to some extent, but the great feature of the group was that many of the Ferns are grown on branching tree stems, which stand from 3 to 5 ft. high, and several plants being used for each stem, the effect was very pleasing. Davallias, Nephrolepis, Adiantums (the vars. with spreading rhizomes), and others, being treated in this way, while many of the smaller-growing Polypodiums, &c., were grown on short pieces of Tree-Fern trunks, covered with sphagnum-moss. In this group the Gymnogrammas were well represented, the most conspicuous being G. chrysophylla grandiceps superba, Alstoniæ flavescens and elegantissima are also good. Gleichenias include the best varieties, dicarpa longipinnata and rupestris glaucescens being very attractive. Some fine varieties of Asplenium were also shown, these include l Mayi, elegantissimum, and other varieties from the Baptisti section. Adiantums were well represented, and include Farleyense, also its variety alcicorne fovearum (brightly tinted with rosy-red), Bessonianum (a new variety of great merit), macrophyllum (highly coloured), fasciculatum dolabriforme (a pretty basket Fern), and many other useful varieties. Davallias: in addition to those shown on Tree-stems, many others were shown in pots and baskets, the varieties of Fijiensis being particularly interesting. Lygodiums were represented by scandens, japonica and polymorpha, all grown on tall, thin sticks. Platyceriums included grande Willincki, æthiopicum, and Hilli. In Polypodiums the beautiful P. Mayi, which was so much admired last year, was well shown. Another fine new Fern shown was Pteris Summersi, which originated from P. Wimsetti. Other fine garden varieties were included in this fine group.

Mr. Birkenhead's group from Sale, Manchester, though not so imposing as the others, was particularly interesting, as it included many species not often exhibited, and the plants, though small as a whole, were remarkably fresh and healthy. The filmy Ferns were well represented, and prettily arranged in a neat glass case. They included Trichomanes radicans, T. parvula, T. Colensoi, T. Alabamensis, Hymenophyllum Fosterianum, H. ciliatum, H. radicans dilatatum, and H. nitens. The hardy species and varieties included some choice forms of Athyriums, Polypodiums, Polystichums. Of the latter there are some fine forms of the plumosum section, the names of these, also those of the lady-Fern, being much too long to enumerate here. P. angulare divisilobium plumosissimum is shown in the Supplement; a fine plant of the North American-maiden-hair (Adiantum pedatum); also Osmunda Claytonianum, Asplenium trichomanes incisum, Blechnum trinervo coronans.

Of the more tender species, some very fine varieties of Gymnogramma schizophylla were shown, superba and gloriosa prolifera (see fig. in Supplement) being very pretty; the latter has a bulbil or young plant on each of the side pinnæ, these being covered with silvery-white farina. The Adiantums included the pretty little monochlamys, A. Lawsonianum, palmatum Luddemannianum, and others. Lomarias included some pretty small growing varieties. Note may be made of Banksi, pumila, crenulata, and the beautifully-coloured L'Herminieri. Lygodium microphyllum, L. volubile and dichotomum, Pteris moluccana and scaberula were well represented. Davallias included aculeata and the choice little D. pedata. Doodia amœna has bright red-tinted fronds. Anemia rotundifolia, A. villosa, Balantium culcita, Platyloma flexuosus, P. ternifolia, and a host of other interesting varieties were shown. We must not omit the beautiful violet-scented Fern, Asplenium fragrans, which, though one of the most difficult to manage, was well shown.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq. (Chairman), and Messrs. Richard Parker, W. Farr, J. W. Bates, Geo. Woodward, Wm. Pope, Jas. H. Veitch, H. Balderson, S. Mortimer, Geo. Bunyard, John Bashan, Robt. Fife, Chas. Herrin, F. Q. Lane, G. Reynolds, J. Willard, J. McIndoe, Geo. Wythes M. Gleeson, W. J. Empson, J. Wright, and Alex. Dean.

FRUIT TREES IN POTS.

The chief exhibit in this section was the very fine collection sent by Messrs. T. Rivers & Sons, Sawbridgeworth. It comprised twenty-four standard, pyramid, and bush trees in 11-inch pots, and several flat-trained trees, all in the best possible condition, and in fruit. There were also, as a central object, very fine fruits of Early Rivers' Nectarine, and Early York Peaches in boxes. The trees included of Peaches, Dr. Hogg, Crimson Galande, Stirling Castle, carrying twenty fine fruits, Hales' Early, Royal George, and Dagmar, rich crimson colour, one of the very best. Of Nectarines, Dryden of superb colour, Stanwick Elruge, also intensely coloured; Humboldt, Rivers' Orange, Cardinal, and Rivers' Early. There were of Plums, Early Prolific, and of Cherries the white Belle d'Orleans, and black Early Rivers. This fine collection had a place of honour in the large tent.

Messrs. G. Bunyard & Co., Maidstone, had elsewhere some eighteen trees and bushes, &c., in pots as a background to a fine collection of seventy dishes of Apples. Of trees, there were in good fruit, Alexander, Waterloo, and Hale's Early Peaches, Early Rivers' Nectarine, Denniston's Superb and red Magnum Bonum Plums, Madeline and St. John Figs, and several cordon Gooseberries. The Apples included, in capital condition, excellent samples of Calville Rouge, Calville Malingre, Calville Blanche, Alfriston, Smart's Prince Albert, Tibbett's Pearmain, Murfitt's Seedling, Striped Beefing, Lord Derby, Annie Elizabeth, Wellington, Newton Wonder, Norfolk Beefing, Gloria Mundi, and Bismarck; also Pears, Catillac and Uvedale's St. Germain, and a dish of good Alexander Peaches.

GENERAL COLLECTIONS OF FRUIT.

Of these a very fine one came from Sir Joseph Pease, M.P., whose gardener Mr. McIndoe, invariably brings from Hutton Hall, Guisborough, first class things. The background consisted of bunches of Black Hamburgh, Foster's Seedling, and early summer Frontignan Grapes, in trebles, admirably finished; and of dished fruits Melons, Scarlet Premier, and three seedlings. Also superb Black Tartarian, and White Bigarreau Napoleon, and Downton Cherries, a dozen fine Grosse Mignonne Peaches, early Rivers' Nectarines, Brown Turkey Figs, Catillac Pears, and McIndoe's Russet and Carlime Apples, with Oranges and Lemons, and Favourite Tomatos.

A by no means less valuable collection was that set up by Mr. Fyfe, gr. to Lord Wantage, Lockinge Park, Berks. This comprised twenty-two dishes, the whole being prettily dressed with Ixia flowers and grassy foliage set up in small glasses. At the back were very fine Madresfield Court and Foster's Seedling Grapes, and also Black Hamburgh and Buckland Sweetwater. Of Melons, Hero of Lockinge, of course, was fine, so also were some seedlings and huge Citrons. Beautiful samples of Stirling Castle Peaches, Impératrice Nectarines, superb in colour; Brown Turkey and white Ischia Figs, Royal Sovereign Strawberry, noble spikes of Monstera deliciosa, Tomatos, and some good Apples, of which Jack, and Fearn's Pippin, were richly coloured.

Mr. Ryder, gr. to the Countess of Limerick, St. Albans had a mixed collection of Fruit and Vegetables, inclusive of Grosse Mignonne Peaches, several dishes; also Strawberry Royal Sovereign, various Melons, Tomatos, Broccolis, Dwarf Beans, Peas, Cucumbers, Lettuces, Turnips, Potatos, &c., neatly set off with some small Palms.

Three dishes of Royal George Peaches were sent by Mr. B. Ashton, gr. to the Earl of Lathom, Lathom House, Ormskirk.

From Mr. W. Bastin, gr. to H. Henderson, Esq., Buscot Park, Berks, came a mixed collection. The fruit included excellent Hero of Lockinge, Earl's Favourite, Blenheim Orange, Royal Jubilee, and a seedling Melon, small Grapes, Figs, Tomatos, with piles of beautiful white, if small, First Crop Cauliflowers. Also Peas, Marrows, Cucumbers, French Beans, Carrots, really pleasingly displayed, the fruits especially being prominent in raised wicker stands.

Mr. W. Robins, gr. to Col. Lee, Hartwell House, Aylesbury, had fine Hales' Early Peaches, and four good Melons.

POT STRAWBERRIES

were shown by Mr. W. Allan, gr. to Lord Suffield, Gunton Park, Suffolk, who had excellently fruited plants of the new Lady Suffield, the fruits are deep coloured, long and tapering, and of capital flavour. After keen voting the Fruit Committee refused it an award because some of the fruits had not swelled up satisfactorily.

Messrs. Laxton & Sons, Bedford, set up very neatly n Ferns, some forty-two pots of their new variety Fillbasket, fruit well set on the plants, and somewhat pale in colour; and some pots of their fine variety Leader, with fruit larger and of deeper colour.

Mr. J. Crook, Forde Abbey Gardens, Chard, showed some vegetables, well kept Apple Sturmer Pippin, Dwarf Bean Progress, very freely podded, and Tomatos.

A very fine and representative collection of vegetables, with some fruit, was staged by Mr. W. J. Empson, gr. to the Hon. Mrs. Wingfield, Ampthill, Beds. A telling central figure was a huge bunch of Bananas, and there were numerous Melons, Sutton's Scarlet Golden Perfection, Hero of Lockinge, seedling, &c.; also the Strawberries, Leader, Royal Sovereign, and Sir J. Paxton. Tomatos, Dedham Favourite, Duke of York, and Market Favourite; of Peas in dishes, Carter's Daisy, Early Morn, and Springtide; and of Beans, Seville Mammoth Long Pod, Ne Plus Ultra, and Osborne's Forcing Dwarf. The background comprised Broccolis, Oxheart Cabbages, Lettuces, Cauliflowers, Giant Leeks, Radishes, &c., and also Cucumbers, Royal Osborne, and various other products, all of high quality, and set up in Mr. Empson's admirable style, making a most attractive exhibit.

Messrs. Webb & Sons, Wordsley, Stourbridge, had fine Cucumbers, Webb's Perpetual Bearer, and Improved Telegraph, also baskets of a fine Pea unnamed, and of Little Marvel Pea, and Harbinger Dwarf Beans.

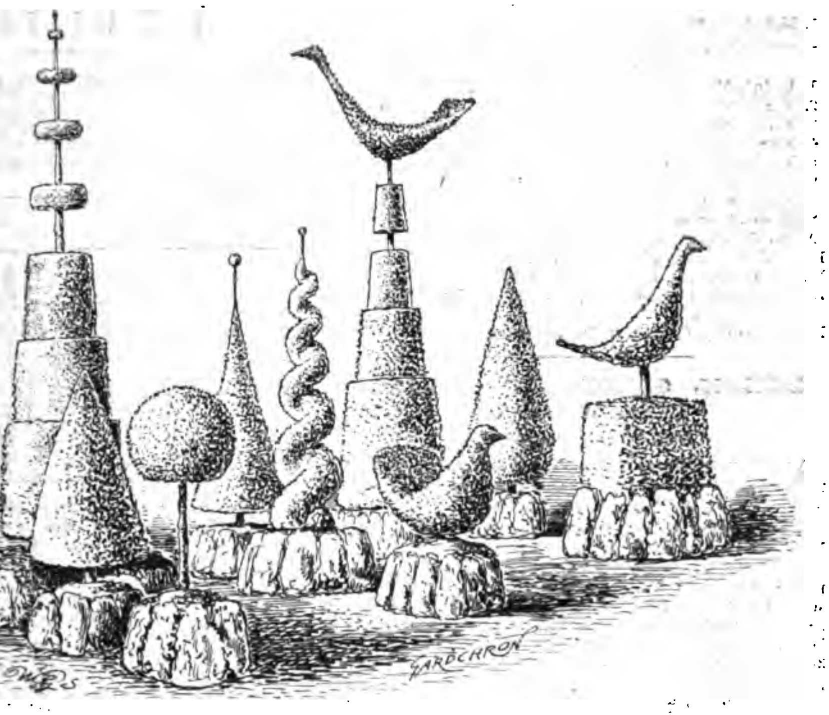


Fig. 129.—Topiary work at the Temple Show.

(Shown by J. Cheal & Sons. See Miscellaneous Exhibits.)

VEGETABLES.

These were frequently shown mixed with fruits, an arrangement convenient to the exhibitor but awkward for the reporter. For that reason it is needful to take the collections as we found them. A very fine exhibit was that put up by Mr. S. Mortimer, Rowledge, Farnham, who had seven boxes of Tomatos and five boxes of Cucumbers, in addition to various dishes, &c. The Tomatos comprised the new Winter Beauty, Perfection, Mitchell's Hybrid, Red Dessert, Sutton's A1, Challenger, Chemin Rouge, and The Cropper. Cucumbers were Improved Telegraph, Express, The Keeper, very deep colour; Prizewinner, Success, and a seedling, six fruits of each, and all of first-class quality. Also Melons Conqueror, Hero of Lockinge, Royal Sovereign, seedling Beau Ideal, and others, some twenty fruits.

Superb Asparagus came from Colchester, being shown by Mr. F. Chapman, who had seven bundles, perfect examples of this vegetable, Mr. W. Godfrey, who had six bundles, and also a bundle of fine Rhubarb, unnamed; and from Mr. A. J. Harwood, who had three bundles.

Messrs. A. W. Young & Co., Stevenage, had a nice lot of their Tomatos, Young's Eclipse, something after the style of Conference.

A most interesting collection of Mushrooms and spawn-cakes, illustrative of his methods of culture and spawn, came from Mr. R. E. Addey, Ealing Road, Brentford, the Mushrooms being presented in baskets in various stages of growth, and were in appearance exceedingly toothsome.

From the Swanley Horticultural College came a large collection of Vegetables, the best things of which were a standard-trained Cucumber, Peerless, carrying six good fruits, also very well fruited Tomatos in pots, and admirably done Dwarf Peas in pots, very fresh. Cucumbers were in great plenty, including Rochford's Magnum Bonum, Matchless, Every Day, &c. There was also a large collection of general vegetables, good and indifferent.

Messrs. Sutton & Sons, of Reading, put up a most interesting collection of superb Peas in baskets, samples equal to the finest out-door products, but having the bloom so finely preserved. The central figure of the collection was a big mound of the new Winter Tomato, Winter Beauty, the stock of which has become the property of the firm. The Peas were shown in broad and narrow round flats, and some in oblong ones; grand were the samples of Early Giant, also Excelsior, May Queen, Bountiful, and Duke of Albany. There were four of these baskets, and if the group was not a great one, the exhibits were of the highest excellence.

Messrs. Jas. Carter & Co., High Holborn, staged a fine and interesting exhibit, inclusive of in pots, Peas, Early Morn, Early Forcing, Anticipation, and Telephone. Also large baskets of Daisy, and the varieties just named, all capital samples.

There were also baskets of Climbing Bean, Case Knife, Duke of York Tomato, Blenheim Orange Melons, Long Sword, and White Advancer, Dwarf Beans, Beets, Radishes, Leeks, Earliest-of-All, and other Cucumbers, fine fruits; Lettuces, Cabbages, Carrots, &c., the whole presenting a collection of great excellence and value.

MISCELLANEOUS EXHIBITS.

Messrs. J. Carter & Co., High Holborn, staged some plants of Mimulus with very large, finely-marked flowers; the strain is known as "The Queen's Prize." Also very fine Giant Mignonette, Lilies-of-the-Valley from retarded crowns, and "Emperor" Petunias, single and double-flowered.

Messrs. Jas. Veitch & Sons, Chelsea, had a few plants of Primula japonica, some with pale-coloured flowers, others very rich purple. Also some pretty Aquilegias. Messrs. Veitch had also some plants of yellow-flowered Callas.

From R. I. Measures, Esq., Camberwell (gr., Mr. H. J. Chapman), came an exhibit of certain species of insectivorous plants. The only Nepenthes was a plant of N. Mastersii ×; but some very fine Sarracenias were staged, including S. Courti, Williamsii, Wrigleyana, and Chelsoni. There were also some fine Droseras, Cephalotus, &c.

Mr. Poupart, of Marsh Farm, Twickenham, showed some exceptionally strongly-grown Lilies-of-the-Valley, exhibited in sprays tied up in the shape of fans.

Mr. Jannoch, of Dersingham, Norfolk, had a very fine exhibit of Lilies-of-the-Valley from retarded crowns, displayed in the cone-shaped masses this well-known cultivator has become famous for.

Messrs. Sutton & Sons, Reading, made a very attractive exhibit of their strains of Nemesia strumosa, a free-flowering annual with very prettily-marked flowers. The older strain may be had in four distinct colours; but in the newer strain, which appears to bear rather smaller and even more numerous flowers, some with blue blooms were noticed—a colour not found in the earlier strain.

Messrs. John Laing & Sons, Forest Hill, S.E., exhibited a batch of plants of their "multiflora" strain of Streptocarpus, in which several novel tints were noticed.

Messrs. J. Cheal & Sons, Lowfield Nurseries, Crawley, had also Rhododendrons, Azaleas, and a topiary exhibit of Box and Yew trees, a revival of an old-fashioned fancy which we cherish when old, but deprecate when new. (See fig. 129, p. 365.)

Messrs. Jno. Waterer & Sons, American Nurseries, Bagshot, showed a nice little collection of hardy Conifers, including several varieties of Cupressus Lawsoniana and of Retinospora; their Taxus japonica is the fastigiate form of Cephalotaxus pedunculata.

A fine group of hardy Bamboos was arranged out-of-doors by Messrs. James Veitch & Sons. There were Phyllostachys nigra × punctata aurea castellionis, Arundinaria Fortunei, nitida Hindsii, chrysantha, &c.; Bambusa Alphonse Kari palmata, angustifolia, tessellata, &c.

Bamboos were also well shown by Mr. V. N. Gauntlett, Redruth.

Awards of the Floral Committee.

Acer pseudo-platanus var. elegantissima variegata. A very ornamental, perfectly hardy Maple. The early foliage is reddish in colour, changing to cream, and finally to a clear variegation of pale yellow and green. A dozen strong plants were shown, each about 5 ft. high.—From Messrs. T. Perkins & Son, Northampton.

Anemone sylvestris flore pleno.—A full double form, with handsome white cone-like blossoms. From Messrs. G. Jackman & Son, Woking. (Award of Merit.)

Begonia Duke of Devonshire.—A flat-petalled, smooth flower, with high centre until the flower has developed. Colour intense crimson. From Mr. T. S. Ware & Co., Ltd. (Award of Merit.)

Begonia Miss Barbara Ray.—Very beautiful and distinct in colour, being a shade of orange-red. In form the flower much resembles a Rose, but has more "centres" than one. From T. S. Ware & Co., Ltd. (Award of Merit.)

Begonia Miss Bella Tait.—An exceptionally large globular-like flower of salmon-scarlet colour, with wavy outlines to the petals. From Mr. T. S. Ware & Co., Ltd. (Award of Merit.)

Begonia Miss Mary Pope (see fig. 127) is a pure white Camellia-shaped flower, the actual size of which may be seen from the illustration. It is one of the best Begonias ever exhibited, and as a pure white flower unexcelled. While the plant has a very good, free-flowering habit, the flower-stems are not proportionate in strength to the weight of the blooms. From T. S. Ware & Co., Ltd. (Award of Merit.)

Dracæna cannæfolia variegata.—An ornamental Dracæna with green and yellow foliage, the stem being as long or longer than the blade of the leaf, which is about 2½ inches in width. The plant has a distinct and handsome appearance. From Messrs. John Laing & Sons. (Award of Merit.)

Heliconia Sanderi is a most ornamental variety. Three large plants were exhibited by Messrs. F. Sander & Co., and as these were protected by a large glass case, it was not convenient to inspect them with a view to making a minute description. The leaves are large and handsome, some of them almost white over the whole surface, and in others the variegation is generally in lines. (First-class Certificate).

Ilex Wilsoni.—Messrs. Fisher, Son, & Sibray. (First-class Certificate.) (See p. 362.)

Juniperus Sanderi.—Probably a temporary form of Juniperus sinensis. It has blue-green needles in place of the green, and is very pretty. From Messrs. F. Sander & Co. (First-class Certificate.)

Pæonia arborea Cecil Rhodes.—A rich, rosy salmon-coloured flower, large, and very fine. From Messrs. Kelway & Son. (Award of Merit.)

Pæonia arborea Miss Beatrice Jones.—A charming white-flowered variety of fine form, the centre tinted with rosy-purple. From Messrs. Kelway & Sons. (Award of Merit.)

Phyllocactus Admiration.—A beautiful flower of warm flesh-colour to rich pink; of very pleasing form. From Messrs. J. Veitch & Sons. (Award of Merit.)

Phyllocactus J. T. Peacock Improved.—A larger flower than the type, being a seedling from J. T. Peacock after being crossed with Niobe. From Messrs. J. Veitch & Sons. (Award of Merit.)

Phyllocactus Nysa.—A very spreading flower of a rich, warm purple shade of cerise. From Messrs. J. Veitch & Sons. (Award of Merit.)

Polystichum angulare divisilobum plumosissimum. — A novelty showing a remarkable second growth upon the fronds made last year; very dense and beautiful. It is in the way of P. a. d. plumosum densum Esplei, but is vastly superior. (See fig. in supplement.) From Messrs. W. & J. Birkenhead. (First-class Certificate.)

Awards.

First-class Certificates.

To Odontoglossum crispum, Arthur Briscoe, shown by W. Thompson, Esq., Walton Grange, Stone.

Cattleya Mossiæ "Beauty of Bush Hill," Messrs. Hugh Low & Co., Bush Hill Park.

Lælio-Cattleya Aphrodite, var. Madame Albert Hye, M. Jules Hye, Ghent.

Lælio-Cattleya Aphrodite "Ruth," J. Rutherford, Esq., M.P., Beardwood, Blackburn.

Lælia purpurata "Annie Louise," G. W. Law-Schofield, Esq., Rawtenstall.

Awards of Merit.

To Odontoglossum triumphans "King Alfred," W. Thompson, Esq., Walton Grange, Stone.

Phalænopsis Sanderiana, Wigan's var., Sir F. Wigan, Clare Lawn, East Sheen.

Miltonia vexillaria Dulcotensis, Walter Cobb, Esq., Tunbridge Wells.

Cattleya Mossiæ Goossensiana; Cattleya Mendeli, Burford variety; and Thunia Bensoniæ superba, Sir Trevor Lawrence, Burford, Dorking.

Cattleya intermedia, Rosslyn var.; H. T. Pitt, Esq., Stamford Hill.

Cattleya Mendeli "Perfection;" Messrs. Hugh Low & Co., Bush Hill Park.

Cattleya Mossiæ "Mrs. C. H. Feiling;" Messrs. Stanley-Mobbs & Ashton, Southgate.

Odontoglossum Halli de Laissemanum; O. crispum "Perle du Congo;" Mons. Jules Hye, Ghent.

Odontoglossum var. "Miss Linden;" Miltonia vexillaria Lindeniæ; M. Linden, Brussels.

Cattleya Mossiæ gloriosa; J. Rutherford, Esq., M.P., Beardwood, Blackburn.

Botanical Certificate.

Campanemia uliginosa; and Cypripedium glanduliferum; Sir Trevor Lawrence.

Gold Medals.

1. Sir Trevor Lawrence, Bt., for Orchids.
2. M. Jules Hye, Ghent, for Orchids.
3. Messrs. J. Veitch & Sons, Chelsea, for Phyllocactus, Caladiums, Gloxinias, Shrubs in Flower, and Bamboos.
4. Messrs. Fisher, Son & Sibray, Handsworth, Sheffield, for Shrubs and Foliage-plants.
5. Messrs. T. S. Ware & Co., Tottenham, for Begonias.

Silver Cups.

1. M. L. Linden, Brussels, for Orchids.
2. Sir F. Wigan, Bart., for Orchids.
3. Messrs. F. Sander & Co., St. Albans, for Orchids and New and Rare Plants.
4. Messrs. Charlesworth & Co., Bradford, for Orchids.
5. Messrs. Hugh Low & Co., Enfield, for Orchids.
6. Messrs. Paul & Son, Cheshunt, for Roses, &c.
7. Mr. Geo. Mount, Canterbury, for Roses.
8. Messrs. W. Paul & Son, Waltham Cross, for Roses.
9. Mr. H. B. May, Edmonton, for Ferns.
10. R. I. Measures, Esq., Camberwell, for Insectivorous Plants.
11. Messrs. Wills & Segar, South Kensington, for Foliage-plants.
12. Messrs. Geo. Bunyard & Co., Maidstone, for Apple and Fruit-trees.
13. Lord Wantage, Lockinge, for Fruit.
14. Messrs. T. F. Rivers & Son, Sawbridgeworth, for Fruit.
15. Messrs. J. Laing & Sons, Forest Hill, for Streptocarpus, Caladiums, and Begonias.
16. Messrs. Sutton & Sons, Reading, for vegetables and Calceolarias.
17. Messrs. J. Backhouse & Son, York, for Miscellaneous Plants and Alpines.
18. W. Thompson, Esq., Stone, for Orchids.
19. J. Rutherford, Esq., M.P., Blackburn, for Orchids.
20. Mr. J. Cypher, Cheltenham, for Orchids.
21. Mr. C. Turner, Slough, for Roses, Azaleas, and Carnations.

Silver-gilt Flora Medals.

1. Messrs. Stanley-Mobbs & Ashton, Southgate, for Orchids.
2. Messrs. Cuthbert, Southgate, for Azaleas.
3. Martin Smith, Esq., Hayes, for Carnations.
4. Messrs. Jackman, Woking, for Clematis.
5. Messrs. R. Smith, Worcester, for Clematis.
6. The Guildford Hardy Plant Co., for Alpines.
7. Messrs. Kelway & Sons, Langport, for Pæonies.
8. Messrs. W. Cutbush & Son, Highgate, for Flowering Shrubs, &c.
9. Mr. J. Hill, Edmonton, for Ferns.
10. Messrs. Fromow & Sons, Chiswick, for Maples.
11. Messrs. Wallace & Co., Colchester, for Lilies, &c.
12. Messrs. J. Waterer & Sons, Bagshot, for Rhododendrons, &c.
13. Messrs. Cannell & Sons, Swanley, for Cannas, Gloxinias, and Begonias.
14. Pantia Ralli, Esq., Ashtead, for Caladiums.
15. Messrs. J. Peed & Sons, West Norwood, for Caladiums and Gloxinias.

Silver-gilt Knightian Medals.

1. A. Henderson, Esq., M.P., Faringdon, for Fruit.
2. Sir J. Pease, Bart., M.P., Guisborough, for Fruit.
3. Mrs. Wingfield, Ampthill House, Ampthill, for Fruit and Vegetables.
4. Mr. S. Mortimer, Farnham, for Fruit and Vegetables.

Silver-gilt Banksian Medals.

1. W. A. Gillett, Esq., Bishopstoke, for Orchids.
2. W. C. Walker, Esq., Winchmore Hill, for Orchid.
3. Messrs. B. S. Williams, Upper Holloway, for Orchid.
4. Mr. A. Perry, Winchmore Hill, for Herbaceous Plants.
5. Mr. W. Bull, Chelsea, for Dracænas.
6. Messrs. J. Birkenhead, Sale, for Ferns.
7. Mr. W. Iceton, Putney, for Palms.
8. Swanley College, Kent, for Vegetables.
9. Mr. J. Russell, Richmond, for Hardy Plants and Azaleas.
10. Messrs. J. Cheal & Sons, Crawley, Sussex, for Herbaceous Plants and Shrubs.
11. Messrs. Barr & Sons, Covent Garden, for Herbaceous Plants.
12. Messrs. Carter & Co., Holborn, for Calceolareas, Vegetables, &c.

Silver Flora Medals.

1. Malcolm S. Cooke, Esq., Kingston, for Orchids.
2. Messrs. Cripps & Son, Tonbridge Wells, for Maples.

Silver Banksian Medals.

1. Ludwig Mond, Esq., Regent's Park, for Orchids.
2. Messrs. Webb, Stourbridge, for Gloxinias and Calceolarias.
3. Mr. Pritchard, Christchurch, for Herbaceous Plants.
4. Messrs. House, Bristol, for Violas.
5. Mr. Jannoch, Dersingham, for Lilies of the Valley.
6. Messrs. Van Waveren, Haarlem, for Astilbes.
7. Mr. W. Poupart, Twickenham, for Lilies of the Valley.
8. Messrs. Storrie, Dundee, for Auriculas.
9. Mr. T. Perkins, Northampton, for Sycamores.
10. R. Hoffman, Esq., Dulwich, for Caladiums.
11. Mr. H. J. Jones, Lewisham, for Begonias.
12. The Countess of Limerick, St. Albans, for Fruit and Vegetables.
13. Mr. Godfrey, Colchester, for Asparagus.

BRISTOL GARDENERS' MUTUAL IMPROVEMENT.

TOMATO CULTIVATION.

A large number of members attended the first meeting of the summer session to hear a paper on "Tomato Culture" by Mr. C. Lock, the chairman of the Society.

In a paper bristling with useful hints on the subject, Mr. Lock dealt with the mode of culture for early, mid-season, and late crops. He stated that though a large number of people grew Tomato-plants, not more than 10 per cent. succeeded in obtaining the best results from them. He recommended that the seed be sown thinly in shallow pans or boxes, the seedlings to be potted as early as possible into 8-inch pots, and when strong enough to be again re-potted or planted in their fruiting quarters. The soil should be good loam and manure, and when the first fruits are set, a mulching may be given. Mr. Lock also gave practical advice upon the important subjects of ventilating, watering, and upon the diseases that attack Tomatos. The variety recommended above all others was Ham Green Favourite.

Prizes for brace of Cucumbers were awarded to Messrs. Marshall and Frampton; and the Society's Certificate of Merit was awarded to Mr. Shaddeck, for a fine specimen of Cypripedium barbatum.

THE BATH and WEST and SOUTHERN COUNTIES.

May 24, 29.—The horticultural exhibits in connection with the Exeter show of the above Society were varied and interesting, a large tent being devoted to this section.

Immediately on entering we noted a fine display from Messrs. W. Cutbush & Sons, Highgate and Barnet, London in which were many of the new varieties of double Azalea mollis, a nice lot of Taheita Oranges bearing quantities of fruit, Lilium Harrisianum, Calla Elliottiana, very choice, and some capital plants of Malmaison and other Carnations. Messrs. B. Brown & Sons, St. Thomas, Exeter, had a capital group of miscellaneous plants, full of flower, and some choice wreaths, bouquets, &c. Messrs. Paul & Sons, Cheshunt, Herts, occupied a large space, showing a number of spikes of Amaryllis with large and showy flowers; Pæonies in quantity, also single and double-flowering Lilacs. Some standard and dwarf Tea Roses were full of bloom, the new H.T. Dawn being very well shown. The new Macartney berberifolia Rose, hardy single yellow, and the Polyantha Rose, Psyche, were in close proximity to fine standard and bush plants of Turner's Crimson Rambler, which, in this stand and several others in the tent, were very freely flowered. Messrs. J. Laing & Sons, Forest Hill, London, had nice Codiæums, Streptocarpus, Begonias, and Ferns. Messrs. Barr & Sons, Covent Garden and Long Ditton, Surrey, showed Darwin Tulips and Tulipa species; also a capital collection of single Pæonies and other hardy flowers. Messrs. Kelway & Son, Langport, Somerset, had a large stand of tree Pæonies full of showy flowers. The end of the tent was occupied by the Messrs. R. Veitch & Sons, Exeter, who had a most artistic and effective display. Bamboos, Maples, Coniferæ, Cytisus, Rhododendrons were arranged at the back, and lower down the surface was broken by a waterfall and pond, in which M. Marliac's new Lilies were planted and bearing flowers. Crimson Rambler Roses were trained up the pillars; one of these being 12 feet high and full of bloom. The portion in the front was covered with choice herbaceous plants and greenhouse shrubs. Sarracenias, Callas, Magnolias, Hydrangea Mariesii, Carpenteria californica, Gerbera Jamesoni, the new Dimorphotheca Eckloni, and Calla Elliottiana were particularly good. Messrs. G. Cooling & Sons, Bath, showed Spanish Iris in quantity; also double Lilacs, Tea Roses in vases, and Fortin's large-flowered Lily of the Valley. Mr. W. J. Godfrey, Exmouth, had cut spikes of Lilacs and choice varieties of Cannas, seedling, show and zonal Pelargoniums, many new oriental Poppies, Carnations, Tropæolum Exmouth Yellow, &c. Mr. Hooper, of Bath, showed a collection of Pansies.

Among amateurs, B. H. Hill, Esq., Newcombes, Crediton (gr., Mr. G. Locke), had a splendid group of plants. Major Brock, Exeter (gr., Mr. Rowland), had a large exhibit, in which were many plants full of flower.

Walking in the grounds, in consequence of the soddened state of the pathways, &c., was a matter of considerable discomfort, but the horticultural tent was drier, and was frequently crowded with visitors.

THE WEATHER.

[The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.						Rainfall.			Bright Sun.	
	Above (+) or below (−) the Mean for the week ending May 27.	Accumulated.				More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.					
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	6 −	32	18	− 22	+ 3	5 −	95	20·7	42	28
1	8 −	30	18	− 65	+ 23	3 −	92	14·9	23	30
2	6 −	28	6	+ 57	− 91	1 +	85	10·2	35	28
3	4 −	45	0	+ 100	− 193	2 +	77	9·2	24	36
4	5 −	46	1	+ 58	− 145	2 +	77	11·5	24	33
5	2 −	66	0	+ 133	− 181	2 −	67	9·9	28	38
6	5 −	35	5	− 31	− 47	3 −	94	22·1	21	29
7	4 −	41	0	+ 75	− 144	2 +	89	14·8	22	32
8	1 −	66	0	+ 117	− 121	2 +	85	18·8	27	36
9	3 −	42	0	+ 1	− 70	2 +	102	16·2	29	32
10	2 −	64	0	+ 89	− 53	2 +	87	19·3	41	36
*	1 −	82	0	+ 290	− 67	4 +	81	13·1	39	43

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending May 27, is furnished from the Meteorological Office:—

"The *weather* was unsettled, rainy, and fairly mild in most parts of the kingdom during the earlier half of the week, but subsequently became cold, fine, dry, and harsh generally. Thunder and lightning were experienced in many places at about the middle of the period.

"The *temperature* was below the mean in all districts, the deficit ranging from 1° in 'England, S.W.,' and the 'Channel Islands,' to 5° in 'Scotland, W.,' and the 'Midland Counties,' 6° in 'Scotland, N,' and 'England, N.E.,' and to as much as 8° in 'Scotland, E.' The highest of the maxima were recorded on the 23rd over England and Ireland, and on the 27th in Scotland; they ranged from 66° in 'England, S.,' and 65° in 'Scotland, N. and E.,' and 'England, E.,' to 60° in the 'Channel Islands' and 'England, N.W.,' to 57° in 'England, N.E.' The lowest of the minima were registered on the 27th, and ranged from 27° in 'Scotland, E.,' 29° in 'Scotland, N.,' and 30° in the 'Midland Counties,' to 34° in 'Scotland, W.,' and 'England, E. and S.W.,' and to 45° in the 'Channel Islands.'

"The *rainfall* was less than the mean in Scotland as well as in 'England, S.,' but rather more than the normal in all other districts.

"The *bright sunshine* was again deficient over the kingdom as a whole, but exceeded the mean in 'Scotland, N.,' and just equalled it in 'Ireland, S.' The percentage of the possible duration ranged from 42 in 'Scotland, N.,' 41 in 'Ireland, S.,' and 39 in the 'Channel Islands,' to 22 in 'England, N.W.,' and 21 in 'Scotland, W.'"

MARKETS.

COVENT GARDEN, JUNE 1.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Cut Flowers, &c.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Anemones, dozen bunches	1 6 —	Marguerites, p. doz. bunches	3 0- 4 0
Arum Lilies, dozen blooms	— 4 0	Maidenhair Fern, per doz. bunches	4 0- 6 0
Asparagus "Fern," bunch	2 0- 3 0	Mignonette, dz. bun.	2 0- 3 0
Azalea, white, 12 bunches	2 0- 3 0	Narcissus, White, dozen bunches ...	1 6- 2 0
Azalea mollis, per dozen bunches ...	6 0- 9 0	Orchids, per dozen blooms	6 0-12 0
Bouvardias, per bun.	0 4- 0 6	Pæonies, doz. bun.	6 0-12 0
Carnations, per doz. blooms	1 6- 3 0	Pelargoniums, doz. bunches	4 0- 6 0
Cornflowers, dozen bunches ...	3 0- —	— scarlet, doz. bun.	6 0- 8 0
Daffodils, per dozen bunches	2 6- 4 0	Roses (indoor), per dozen	1 6- 2 0
Eucharis, per dozen	2 0- 3 0	— Pink, per dozen	4 0- 6 0
Gardenias, per doz.	1 0- 3 0	— Tea, white, per dozen	2 0- 3 0
Hyacinths, Roman, per doz. bunches	4 0- 6 0	— Perle, per doz.	1 0- 2 0
Jonquils, doz. bun...	1 0- 2 0	— Safrano, p. doz.	1 6- 2 0
Iris, doz. bunches...	6 0- 9 0	Smilax, per bunch	3 0- 5 0
Lilium longiflorum, per dozen ...	4 0- 6 0	Spiræa, doz. bun....	4 0- 6 0
Lily of the Valley, dozen bunches ...	4 0-12 0	Stock, doz. bunches	2 0- 8 0
		Sweet Peas, dozen bunches	6 0- 8 0
		Tuberoses, 12 blms.	0 8- 1 0
		Tulips, per dozen...	0 6- 1 3

Vegetables.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ...	2 0- 2 6	Mint, natural, per dozen bunches, according to size of bunches	2 0- 3 6
— Jerusalem, per sieve	1 6 —	Mushrooms, house, per lb.	— 0 8
Asparagus, Toulouse	0 11-1 3	Onions, Egyptian, cwt. bag ...	4 0- 5 0
— Sprue	0 6 —	— New, bunches.	2 6- 3 0
— Eng., natural, per bundle ...	1 0- 3 6	— picklers, sieve	3 0 —
— Various others	0 9- 1 0	Parsley, doz. bun.	2 0 —
Beans, Dwarfs., Channel Islands, lb.	0 8- 1 0	— sieve	1 6 —
— — English, lb.	0 8 1 0	Peas, Channel Islands, Frame Telephone, lb.	0 10-1 0
— — Longpods, in crates ...	3 0 —	— English, sieve	5 0 —
Beetroots, per doz.	0 8- 1 0	— French flats ...	4 6 —
— bushel	2 6 —	Potatos, Bruce, Up-to-Date, &c., per ton ...	80 0-100 0
Broccoli, dozen ...	— 4 0	— New Jersey Kidneys, per cwt.	13 0 —
— crates	12 0-18 0	— — Teneriffe, per cwt. ...	13 0- 14 0
Cabbage, tally ...	5 0- 6 0	— Lisbon, per box	4 6 —
— per bushel ...	1 9 2 6	Radishes, Round, breakfast, per dozen bunches	0 4- 0 8
— dozen	1 0- 1 3	Rhubarb natural, per dozen ...	1 6- 2 6
Carrots, new French, per bunch ...	0 6- —	Salad, small, punnets, per dozen	1 3 —
— washed, in bags	4 0- 5 0	Spinach, English, per bushel ...	0 6- 1 6
Celery, New, per bundle ...	1 6 —	Tomatos, new English, per lb.	0 6½-0 8
Cress, doz. punnets	1 6 —	— Channel Islands, p. lb.	0 6- 0 8
Cucumbers, per dozen	2 0- 3 6	— Canary, boxes two sizes ...	3 0- 6 0
Endive, French, per dozen	1 6 —	Turnips, New French, per bunch	0 4- 0 6
Garlic, per lb. ...	0 3 —	Watercress, p. doz. bunches ...	0 4- 0 6
Horseradish, New English, bundle	2 0 2 6		
— — loose per doz., fine ...	1 6 —		
— Foreign, per bundle... ...	1 0- 1 2		
Leeks, per dozen bunches ...	1 0- 1 6		
Lettuce, Cos, dozen	3 0- 3 6		
— Cabbage, dozen	0 8- 1 0		

Potatos.

Bruce, Main Crop, Up-to-Date, &c., 60s. to 90s.; Dunbar Main Crop, 100s. to 110s. Jersey New, 12s. to 14s. per cwt; Canary, 13s. to 14s.; Cherbourg and St. Malo, 11s. to 12s.; Lisbon, per box, 4s. 6d. to 4s. 9d. *John Bath, 32 and 34, Wellington Street, Covent Garden.*

Remarks.—During the week Cabbage improved in price; Spinach declined, owing to larger supply; Radishes plentiful, and low in price; New Potatos have a downward tendency, and Gooseberries may be expected to be much less in price ere the week ends. English Peas have commenced in sieves or half-bushels. The Australian Grapes, called Daria (very like the Almeria), in cases marked 30 lb. nett, come in fair condition, packed, some in red-wood dust, some in cork-dust, the last decidedly the better.

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantums, p. doz.	5 0- 7 0	Fuchsias, per dozen	6 0-10 0
Aspidistras, p. doz.	18 0-36 0	Hydrangeas, p. doz.	6 0-10 0
— specimen, each	5 0-10 0	— paniculata, doz.	18 0-24 0
Bouvardias, p. doz.	18 0-42 0	Lycopodiums, doz.	3 0- 4 0
Calceolaria, p. doz.	5 0- 9 0	Marguerite Daisy, per dozen ...	6 0- 8 0
Euonymus, various, per dozen ...	6 0-18 0	Mignonette, p. doz.	4 0- 8 0
Ferns, in variety, per dozen ...	4 0-12 0	Palms, various, ea.	1 0-15 0
— small, per 100 .	4 0- 6 0	— specimens, ea.	21 0-63 0
Ficus elastica, each	1 0- 5 0	Pelargoniums, var.,	6 0 10 0
Foliage plants, var., each	1 0- 5 0	— Zonals, per doz	6 0- 8 0
		Roses, per dozen ...	6 0- 9 0
		Spiræas, per dozen	4 0- 6 0

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian and Victorian, Ribstons, Pearmains, New York Pippin, Sturmer, Prince Bismarck, &c., per case ..	9 0-14 0	Grapes, English, Hambros, per lb.	1 9- 2 6
Apricots, box various numbers ...	1 0- 2 3	— Channel Islands Hambros, per lb.	1 9- 2 6
Bananas, per bunch	6 0-10 0	— Muscats p. lb.	2 6- 4 0
Cherries, sieve ...	7 6 —	Lemons, per case...	8 0-30 0
— peck	5 0 —	Lychees, Chinese, packet, 1 lb. ...	1 3- 1 4
— box	0 9- 1 6	Melons, each ..	1 3- 1 9
Figs, per dozen ...	2 0- 8 0	Oranges, Murcia, cases of 150 or 200	8 0- 8 6
Gooseberries, sieve	4 0- 5 0	Peaches, A., per dozen	8 0-18 0
Grapes, Belgian A., per lb., new ...	1 9- 2 6	— B., per doz. ...	4 0- 6 0
— Australian, White Daria, in cases marked 30 lb., nett ...	15 0-16 0	Pines, St. Michaels, each	3 6- 6 0
		Strawberries, p. lb.	3 0- 4 6
		— Seconds ..	1 0- 2 0
		— French, in baskets, about 4 lb.	1 0- 1 6

SEEDS.

London: *May* 31.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to day's seed market, as was to be expected, proved bare alike of buyers and of business. The season being over, Clover seed is now naturally a dead letter. Occasional small orders still drop in for spring Tares. As regards sowing Mustard and Rapeseed, the market is very strong. Blue Peas and Haricot Beans are also firm; whilst in Canary-seed, a greatly improved feeling is shown, and as the result of persistent bad crop reports, and consequent speculative buying thereon, a substantial advance in values has been established. Hempseed, moreover, continues scarce and dear, Linseed is steady. More money is asked for Scarlet Runners.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending May 27, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.		
	s.	d.	s.	d.		s.	d.
Wheat	47	9	25	2	—	22	7
Barley	26	5	23	8	—	2	9
Oats	21	5	17	8	—	3	9

FRUIT AND VEGETABLES.

Glasgow: *May* 31.—The following are the averages of the prices recorded since our last report:—Apples, Canadian Spies, 14s. to 18s. per barrel; Western States' Russets, 18s. to 20s. do.; Oranges, 6*d*. to 1s. per dozen; Grapes, home, 2s. to 4s. 6*d*. per lb.; do., foreign, 6*d*. do.; Tomatos, Guernsey, 4*d*. to 8*d*. per lb.; do., Scotch, 5*d*. to 8*d*. do.; Cabbages, Spring, 6*d*. to 1s. per dozen; Leeks, 2s. to 2s. 6*d*. per dozen bunches; Mint, green, 6*d*. per bunch; Onions, 4s. 6*d*. to 5s. per cwt.; Parsley, 2s. to 2s. 6*d*. per stone; Carrots, new, 1s. per bunch, and 4s. 6*d*. to 8s. per cwt.; Cucumbers, 4*d*. to 5*d*. each; Lettuces, round, 1s. 3*d*. to 1s. 6*d*. per dozen; do., Cos, 4s. to 5s. do.; Radishes, long, English, 1s. 6*d*. per dozen bunches; round, do., 1s. 6*d*. to 2s. do.; Horseradish, 1s. 6*d*. to 2s. per bundle; Mushrooms, 1s. to 1s. 2*d*. per lb.; Beetroots, 6*d*. to 7*d*. per dozen; Mustard and Cress, 3*d*. per punnet; Spinach, 2s. to 4s. per stone; Rhubarb, 2s. 6*d*. to 3s. 6*d*. per cwt.; Turnips, French, white, 1s. to 1s. 3*d*. per bunch; Swedes, 2s. to 2s. 6*d*. per bag; Broccoli, Irish, 2s. to 2s. 6*d* per dozen; Greens, 5s. to 6s. per 10 dozen.

Liverpool: *May* 31. — *Wholesale Vegetable Market.* — Potatos, per cwt., Main Crop, 3s. 8*d*. to 4s.; Bruce, 2s. 9*d*. to 3s. 6*d*.; Champion, 2s. 6*d*. to 3s.; Turnips, Swedes, 2s. 6*d*. do.; Carrots, 5s. 6*d*. to 6s. do.; Parsley, 6*d*. to 8*d*. per dozen bunches; Onions, foreign, 4s. to 5s. per cwt.; Lettuces, 8*d*. to 1s. per dozen; Cucumbers, 1s. 3*d*. to 3s. per dozen; Cauliflowers, 1s. 3*d*. to 3s. do.; Cabbages, 10*d*. to 1s. 6*d*. do. *St. John's.*—Potatos, 1s. to 1s. 3*d*. per peck; do., new, 2*d*. to 3*d*. per lb.; Grapes, home, 2s. 6*d*. to 4s. do.; Pines, English, 4s. to 6s. each; Strawberries, 6*d*. to 1s. per lb.; Peas, 4*d*. to 1s. per lb.; Cherries, 6*d*. to 1s. do.; Cob Nuts, 6*d*. do.; Apricots, 1s. per dozen; Asparagus, 2s. 6*d*. to 4s. per 100; do., bundle, 1s. 6*d*. to 3s.; Cucumbers, 3*d*. to 4*d*. each; Mushrooms, 1s. 4*d*. per pound and basket. *Birkenhead.*—Potatos, 1s. to 1s. 2*d*. per peck; do. new, 1½*d*. to 3*d*. per lb. Peas, 3*d*. to 5*d*. do.; Asparagus, 1s. 9*d*. to 4s. per 100; Cucumbers, 3*d*. to 6*d*. each; Strawberries, 6*d*. to 1s. per lb.; Cherries, 6*d*. to 10*d*. do.; Apricots, 1s. per dozen; Gooseberries, 4*d*. to 6*d*. per lb.; Grapes, home, 2s. to 3s. 6*d*. do.; Mushrooms, 1s. to 1s. 6*d*. do.

SOUTH AFRICAN NOTES.

THE EFFECT OF FROST ON TROPICAL PLANTS.

The greatest cold registered here for several years was 21° below freezing-point, Fahr., on the night of July 10, 1898, under a screen 4 feet from the ground. The cold was severe enough to burst water-taps in the open, and long icicles formed under our fountain, remaining unmelted for several days. No rain fell or snow, the air being very dry. Many half-hardy plants were killed, but several tropical subjects survived.

Aristolochia ornithocephala on a trellis in the open was quite dead above ground, but to my surprise it sent up a strong shoot as the summer came on, and is now (March) flowering very well. A companion plant of A. elegans was also hard hit, and is now growing well, but has produced no flowers. Gerbera Jamesoni I gave up for lost, but it soon sent up fine leaves and flowers; this is one of the very best native flowering herbaceous plants that we have. Cobæa scandens was quite killed, as was Pittosporum undulatum. Mesembryanthemums just survived, as also Pelargoniums and Fuchsias, though F. corymbiflora under a wall was killed. Mackaya bella died, but Gardenia Thunbergi pulled through. Fourcroya Lindeni and Bromelia bracteata, it is strange to say, look none the worse after being frozen hard; Pancratium calathinum proved quite hardy; also Hedychium Gardnerianum, Caladium esculentum, Tweedica cœrulea, Thunbergia natalensis, Laurus Camphora, Acacia cultriformis, Melaleuca speciosa, and Solanum jasminoides. Araucaria Bidwilli, A. Cunninghami, and A. excelsa lost their tops; Musa Ensete survived with a thick grass thatching; Leonotis Leonurus, Wigandia urens, a fine hybrid Passiflora (much like P. quadrangularis), Lagerstrœmia indica, most hybrid Abutilons (except A. megapotamicum, which is quite hardy), Habrothamnus elegans, H. aurantiacus, Metrosideros decussata, and Bougainvilleas were all cut to the ground, but shot up again from the roots. Passiflora edulis, Bouvardias, Ricinus communis, hybrid Salvias, and Brugmansia suaveolens were nearly killed; Encephalartos caffra and E. villosus survived; Nymphæa cœrulea proved quite hardy.

Amongst trees, Grevillea robusta, Eucalyptus robusta, E. leucoxylon, and young E. Globulus lost their leaves, but soon revived. Eucalyptus citriodorus was killed to the ground, but it eventually sent up a strong shoot. Eucalyptus terminalis was quite untouched; Casuarina tenuissima was badly scorched; Acacia melanoxylon, A. mollissima, and A. dealbata, proved hardy. It was remarkable to see the last-named a mass of golden bloom at a time when the frost was most severe; even the half-expanded flowers were uninjured. Also flowering in mid-winter were Sutherlandia frutescens and Buddleia salvifolia.

Such plants as Tuberoses, hybrid Cannas, Sparaxis pendula, Richardias, and dwarf Bamboos, came through the ordeal all right. Bambusa arundinacea (Giant Indian Bamboo) was killed to the ground, but afterwards sent up fresh growth. Tree-Ferns and Palms, I have learnt from experience, never to plant in the open, as the wind and dust-storms soon render them miserable objects. Indian Azaleas, Camellias, and Rhododendrons, in tubs under a trellis, did not lose a leaf. Young Lemon-trees were cut to the ground. The only species amongst Cacti which will endure the winter frost is the Prickly Pear (Opuntia vulgaris). Of a large collection of Yuccas, none was injured. The Y. Wipplei does very well here. *R. W. Adlam, Joubert Park, Johannesburg.*

CATALOGUES RECEIVED.

Chantrier Frères, Mortefontaine, Plailly, Oise, France—Stove and Greenhouse Plants, Palms, Ferns, Orchids, &c.

John Peed & Son, Roupel Park Nursery, London, S.E.—Caladiums, Codiæums, Cordylines, &c.

GARDENING APPOINTMENTS.

Mr. W. R. Hinton, formerly Gardener at The Grove, Epsom, as Gardener to Nevile Reid, Esq., The Oaks, Hanworth, Middlesex.

Mr. W. E. Wynne, as Gardener to R. Francies, Esq., Crofton Hall, Orpington, Kent.

Mr. John Harriss, lately of Balchitha Gardens, Greenock, and at present in Messrs. Ker & Son's Aigburth Nursery, Liverpool, as Head Gardener to C. Taylor, Esq., Ash Grange, Whitchurch, Shropshire.

Mr. James Bell, for the past four years Foreman in the Gardens, Jesmond Towers, Newcastle-on-Tyne, as Head Gardener to A. Henderson, Esq., Leazes House, Durham.

Mr. Wm. Arthur, as Head Gardener to F. B. Atkinson, Cresswell Hall, Morpeth.

Mr. James Dent, late Gardener at Downton Castle, Herefordshire, as Head Gardener to the Hon. Mrs. Barton, Luttrellstown Castle, Clonsilla, Co. Dublin.

ENQUIRY.

Twice-named Plants.—An enquirer asks if there is any law forbidding the offer for sale, under a new name, of an established variety, or one previously introduced? We do not know of any special legislation, beyond the ordinary law for the repression of fraud and misrepresentation.

Answers to Correspondents

A Collection of Salad: *Mrs. S. C. H.* In the month of August, the collection might consist of Lettuces, Cos and Cabbage varieties; Radishes, long, medium, and Turnip-rooted; Cresses, various, including Normandy and Water-Cress; Egyptian Beetroot, young Onions, the earliest blanched Celery, Cucumbers, Tomatos, Gherkins, Tarragon, tender leaves of Sorrel, bulbs of Garlic, and Shallots. From these nine kinds could be selected according to fancy.

Apple Shoots: *Correspondent.* We do not find any fungus. The appearance may be due to frost attacking the young leaves.

Bud in Axil of Leaf of Tulip: *G. H. D.* Not an uncommon occurrence. A bulb is only a bud, and if at this season you will look at young growing shoots you will find such a bud in the axil of many of the leaves.

Cucumber Leaves: *M. G.* We do not find any insect or fungus on your leaves. The appearance is due to "scald," probably produced by syringing when the sun is out, or from deficient shading, or perhaps from bad glass.

Dendrobiums: *D. McK.* It is not possible to name such miserable scraps which, wrapped in cotton-wool, have passed through the post in a letter, and, of course, were smashed and shrivelled out of recognition. Such things should be packed in a tin or wooden box, in green-moss or sphagnum-moss, or in moistened blotting-paper, they then travel in good condition.

Dendrobium infundibulum: *R. R.* In your flower there are two sepals and two petals, all regular, and placed cross-wise. It is a case of reduction in the number of parts, and of regular peloria, the segments being all equal.

Hyacinths: *X. Y. Z. No.* 4. The disease on Hyacinths is due to a fungus, Uromyces scillarum. The clusters of black spots arranged in a nearly concentric manner are characteristic. The same fungus occurs on the Wild Hyacinth, and has probably come from the woods into the garden. To check, spray with potassium sulphide (½ oz. to each gallon of water), or Bordeaux Mixture, beginning as soon as the shoots show above ground, and continued every two or three weeks. *W. G. S., Leeds.*

Insects: *O. E. G.* Sirex gigas, injurious to growing trees.

Lilacs: *G. H.* The sport might be propagated by cuttings, or by grafts on the common Lilac.

Mango Cultivation: *L. E. S.* Unless your stove is of great height the plant must be grown as an orchard fruit-tree under glass, that is, restricted as to rooting space, by planting it in a big pot, tub, or walled pit in a border, and pinching the lateral shoots, stopping leaders, and thinning-out weak shoots growing in the interior of the crown. For the first few years, however, allow the plant to develop the frame-work, as it were, of a crown, not practising much restriction either at root or top; this can follow later when the plant is approaching the limits of extension. The soil should consist chiefly of sandy-loam of good quality, and not much solid manure, as aids to growth can be better afforded by manurial top-dressings such as stable-manure, potash, superphosphates, nitrate of soda (a little), or by manure-water. When the plant flowers, means should be taken by shaking them, or applying a pair of bellows gently, to distribute the pollen. The plant will succeed under ordinary hot-house culture, or it would do in fruiting Pine-stove.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—Mrs. H.* The Lotus is L. peliorhynchus (Pigeon's Beak), a native of Teneriffe. We are unable to name the Prunus from the scrap received.—*H. B.* Specimens all shrivelled. 1, Illicium anisatum; 2, Amelanchier vulgaris; 3, Jasminum; 4, Panax species; 5, an Oncidium which is not recognisable in its present withered state.—*Mallow.* 1, Clematis montana; 2, Cerasus; 3, Purple Beech; 4, Acer eriocarpum; 5, Orchis mascula; 6, cut-leaved Beech; 7, Acer Negundo variegatum; 8, A. monspessulanum; 9, Spiræa prunifolia, double var.; 10, Saxifraga sarmentosa. Another time do not send more than six at a time; our time is valuable.—*C. L.* Cymbidium aloifolium.—*X. Y. Z.* Sent in round tin box. 1, Begonia ricinifolia manicata; 2, Begonia argyrostigma; 3, Dendrobium crepidatum.—*H. B.* 4, Panax elegans.—*F. A.* The fungus is Coprinus fuscescens, Schff. *M. C. C.—Lady Cecil Scott Montague.* Morea spathacea, Ker. (Dietes Hookeri, Hook.), native of Cape of Good Hope.—*A. U.* The single-flowered Russian Violet, a variety of Viola odorata.—*L. W. F.* Styrax officinale.—*J. B. H.* Piptanthus nepalensis, commonly called Natal Laburnum.—*W. E. L.* 1, Lotus peliorhynchus; 2, Polygala Dalmaisiana; 3, Cistus ladaniferus; 4, Aubrietia deltoidea var.; 5, Alyssum calycinum; 6, Polygonatum vulgare.—*Heather.* Apparently it is Calluna vulgaris, but it is drawn and out of character.—*J. B.* Leucothoe Catesbæi.—*G. D.* 1, Zenobia speciosa; 2, Berberis vulgaris; 3, Ruscus aculeatus; 4, Spiræa chamædrifolia; 5, Berberis Wallichiana; 6, Ligustrum coriaceum.—*Constant Reader.* Dendrobium tortile.—*R. T. D.* Hyacinthus comosus.—*W. W. J. & Son, Boston.* 1, Allium ursinum; 2, Stellaria Holosteum; 3, Sedum spurium; 4, Saxifraga hypnoides; 5, Asperula odorata. Send a specimen of the shrub.—*F. Prince.* Edwardsia grandiflora.—*Merodon.* Solanum jasminoides; the flowers usually are white when grown under glass, in the open they are tinged with blue.—*C. W. D.* Anemone albana, var. flavescens, Regel.—*F. Bowen.* 1, Lælia purpurata Schroderi; 2, Lælia purpurata of good type; 3, Odontoglossum crispum guttatum; 4, Odontoglossum crispum, very fine; 5, Cattleya Mendeli, good forms; 6, Miltonia vexillaria, very bright in colour and large in size; 7, Cattleya Mossiæ; 8, Odontoglossum luteo-purpureum.

Narcissus: *T. L.* The arrest of growth is very common. In our own garden the same thing occurs regularly every year, but we have not been able to ascertain the cause.

Nine Sorts of Vegetable for Exhibition: *Mrs. S. C. H.* These would differ with the date of the exhibition, but taking August as the month, the nine might consist of Peas, French Beans, Globe Artichokes, Potatos, Round and Kidney; spring-sown Onions, Cauliflowers, Cabbage, and Carrots. Others that would be considered by the judges of less value at that date are, Broad Beans, Parsnips, Early Savoys, Butter Beans, Celery, Beetroot, Runner-Beans, Turnips, and Vegetable-Marrows.

Peaches: *H. A. D.* The leaves appear to be suffering from the Silver-leaf disease, a malady common on Plums and other stone-fruits. It is said to be curable by an application of sulphate of iron to the soil, after lifting the tree in the autumn.

Peaches Dropping: *E. E.* The more probable cause is dryness and exhaustion of the soil, seeing that you have growing in a space of "3 yards square" two Vines and two Peach-trees—space scarcely more than sufficient for one plant. The applications of water may have been insufficient in quantity to reach every part of the border.

Pear Blossoms: *F. L.* The flowers have not been properly fertilised, and are therefore abortive. Another time encourage the bees.

Roses: *J. R.* Apparently Crimson Rambler, and the Double Macartney.

Soil and Insects: *C. S., Ipswich.* There are some immature larvæ in the soil, but we cannot tell what they are. Mustard, in powder, mixed with the soil is injurious to some of these creatures. It can do no harm to try it in your case; or Mustard-plants may be grown and ploughed in.

Tomatos Diseased: *C. J.* The specimens present all the stages of Tomato "Sleepy" disease, as described and figured by Mr. Massee in this paper on June 8, 1895. The following is the treatment recommended in that paper: "Spraying with a fungicide is of no avail, as the roots are first attacked, and the parasite is internal. As much lime as the plants will allow should be mixed with the soil, more especially if the plants are grown during successive seasons in the same beds. If the plants in a house are badly attacked, all the soil should be removed, and the walls, &c., sterilised by a wash of lime. The infected soil removed from a bed should not be thrown out at random, but should be sterilised by mixing with quicklime."

Tomatos and Manure: *W. J. G.* If green cow-dung or any other animal manure be used, it should first be mixed with a large quantity of water in a tub, stood in the sunshine, and allowed to ferment for a week, and if the ferment does not then subside a sufficient quantity of white vitriol should be added to stop it, as too great fermentation spoils manure-water. As an artificial, given along with farm-yard manure, nothing is better than commercial potash, and the next best, wood-ashes from green wood. Kainit might be afforded at the rate of 2 to 3 ounces per square yard.

Tulip: *R. C.* We cannot name florists' varieties. Send to some grower.

Tulips: *X. Y. Z. No.* 2. The Tulips are badly attacked in the same way as described in this column last year (May 21, 1898, p. 320). The fungus is almost the same as that which attacks Lilies and Onions (see *Gardeners' Chronicle*, August 11, 1894). Bordeaux Mixture applied early would check the disease, but we doubt if anything short of a thorough clear out will do any good in the present case.

Vines: *C. T. M.* The Vines may be starved, or they were greatly over-cropped last year; more than that we cannot say without seeing the Vines.

Communications Received.—Sutton & Sons.—J. Carter & Co.—W. G. S.—W. J. J.—M. B.—W. T. T. D.—A de la D.—D. R. W.—D. T. F.—J. B.—John Cowan & Co.—W. H.—A. P.—W. A.—W. C.—W. T. T.—F. A. W., Burlington, U.S.A.—O. E. G.—J. C. & Co.—A. H.—W. & J. B.—H. Corder.—F. B.—H. Friend.—R. M.—W. S.—C. de B.—R. P. B.—D. R. W.—R. D.—E. C.—C. D. T.—Rey.—C. S. G.

Specimens and Photographs Received with Thanks.—R. R.—Earl of A.—F. A. White.—D. T. F.—P. & Sons.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libraries.*

THE
Gardeners' Chronicle
No. 650.—SATURDAY, JUNE 10, 1899.

SEA-SIDE PLANTING.

BEING a resident on the south-coast, and acquainted with the very varied shoreline from Cromer to the North Foreland, and from there to Beachy Head, I think, perhaps, my experience of the trees and shrubs suitable to plant in such exposed positions may be of interest to your readers, so I will endeavour, following up what was stated in your leading article on p. 338, to impart what I have learned by both success and failure, as regards the decoration of sea-fronts from a landscape gardener's point of view.

With more or less wisdom, local authorities in sea-side resorts are expending thousands of the ratepayer's money on the improvement and decoration of their sea-fronts. Few, if any, of these bodies know anything of even the first principles of applied botany, and thus we have grievous and expensive mistakes too frequently made in seaside planting, even where the advice of a skilled gardener is not wanting. I could cite many instances of this, the year preceding the Jubilee celebrations being prolific in such hastily-planned and ill-judged work, for thousands of fine specimens of trees, Conifers, and shrubs were, as one may say, offered up as sacrifices before the throne of royalty, only to linger on a miserable existence, and finally to end on the rubbish-heap, or furnace of the dust-destructor.

It would be unfair to particularise, as all more or less fell into error, and wasted good material and money on useless planting of salt-spray wetted banks or storm-swept shores, with ill-chosen and improper subjects, drawn indiscriminately from Surrey or even metropolitan nurseries. They have been purchased generally by the borough surveyor or some member of the corporation, who poses as an authority in such matters; for it is a fact, though painful to relate, that the advice of a nurseryman, who has lived a long life at the seaside, and bought his experience dearly, is rarely if ever taken, and thus many grave errors are perpetrated that might have been avoided. One instance I will cite, where "the authority," aiming to avoid disturbing the concrete of the parade, went to the great expense of having a lot of large tubs made, painted green, with black hoops and handles. In these were planted a mixed collection of Conifers, evergreen and deciduous shrubs, which had been prepared for the work, and when these had to a certain extent established themselves, they were early one morning placed at intervals along the sea-front, to the admiration of the visitors and residents, who, in their ignorance, thought the difficulty of adorning the esplanade solved. There were Golden Elders in grand colour, Lilacs showing flower, Conifers of handsome pyramidal habit and growth, and of varied shades of green and gold, and the useful Japan Euonymus, both golden and green-leaved—indeed, a very creditable lot of plants.

Old hands shook their heads and said little, but the young knowing ones were quick to exclaim, "Very pretty, but wait till we have a strong south-west gale, and then see what you think of it!" Alas! too soon black clouds piled up in the west, and presently it began to blow with increasing violence till the next morning, when a sad sight met the view of the early-risers. The soft-leaved, deciduous shrubs were bared on the wind side, the Conifers and most of the evergreens browned and discoloured, the Japanese Spindle-trees (Euonymus japonica) being the only subjects that escaped, while even they were discoloured and broken.

This was repeated in many of the coast towns of our sea-girt "tight little island;" and even when the planters had thoughtfully placed a Tamarisk hedge, or sheltered the shrub borders with large meshed sheep-netting, the shrubs were only partially saved. We may learn from this, first, that a lasting and efficient shelter must be secured, and then only the well and truly tried hardy shrubs planted, if success be courted. As a hedge or shelter there is nothing so dependable as the Tamarisk, the small, dense-growing kind known as T. gallica, being best for this purpose; though the so-called German Tamarisk, Myricaria germanica, forms pretty, free-flowering, single specimens, where planted separately. Yet another of the genus coming to us from the African shores of the Mediterranean is larger in all its parts, but is not so hardy as the two first named. These are easily propagated by cuttings taken of the ripe wood, and to form a shelter should be planted when about a foot high, nine inches apart in a single row, or a foot apart if a double hedge is contemplated. When established, cut down to 6 inches, and in a very short time you will have an effective hedge, which will only need an occasional trimming to keep it neat and serviceable, when it will take care of itself. T. gallica certainly forms the best hedge of the three varieties, and is an elegant and graceful growing plant. A lady friend of mine, dilating on the wonderfully mild climate of Bournemouth, said in my hearing, "Why, they make hedges there of the Asparagus Fern," this being the common name of Asparagus plumosus; but when I had the chance to put a leading question to her, "Have you seen it flower?" she quickly replied, "Oh, yes, it flowers in little spikes of pinkish or salmon flowers at the tips," and then I knew it to be simply the Tamarisk, which, though it may not be quite so light and elegant as the Asparagus, is certainly graceful.

Allied to the Potato, another plant must take the second place as a shelter or hedge plant, namely, Lycium barbarum, known in the country as the Tea-tree. This may be frequently seen planted by the porches of cottages, where it forms a leafy screen in summer, and after giving its grey-blue blossoms in profusion, is in some seasons covered with small, Plum-like fruits, coloured red, like Tomatos. It grows very rapidly, produces suckers abundantly, and will stand frequent trimming, so it makes an effectual hedge or screen. Though a salt-laden gale will brown the leaves, yet it soon grows again, while it is so twiggy, and at the same time sparsely armed with woody thorns, that it may be used at the sea-side to make hedges, and as it grows so quickly, it is most useful in the summer to form screens for bedding-plants or tender shrubs in such situations. It may be raised from seed or cuttings at any time of the year, and may be planted alternately with Tamarix in the hedge-line, as it will impart a stiffness to the fence as it gets older and more woody. A variety—Lycium europæum—is much more thorny, but I fear, unless on the south coast, would not survive our winters.

In enumerating shelter-plants, we must on no account forget the Japan Spindle-tree, Euonymus japonica, now available in many excellent varieties, from the small-leaved, stiff, erect-growing type, known as Euonymus sempervirens, to the pretty miniature foliaged sort, called in nurseries "pulchellus;" the only thing possible to urge against it, that even in the South, winters that register anything like 20° of frost, will kill it to the ground, and temperatures of even less severity will cause it to drop its leaves, though it generally recovers before midsummer. Where it thrives, however, nothing we have makes a closer or more elegant hedge or compact screen to keep off cold or strong winds from foliage or bedding-plants during summer, while though it may lose all its foliage in sharp winters, yet its very compact and twiggy growth will always serve to make it a good screen, and by introducing the kind which develops a golden-tipped growth in spring, called by the common folk flowering, or the broad-leaved golden variegated variety (Ovata aurea) into the hedge, the monotony of greenery is broken, and a useful and very ornamental fence formed. The importance of this evergreen is proved by a nurseryman in the South, devoting nearly the whole of his acreage to its culture.

I hate to dogmatise, but think it would be quite safe to state that not only this, but all the Japanese shrubs and trees, especially those indigenous to the north island, are hardy in Britain and Ireland, and coming to us from a land swept by gales from off the seas, they are by environment naturally well-fitted for seaside work.

Before going further it will be best to state that it is always unsafe to use large specimens of any kind for marine planting, as though you may shelter and secure the stakes, yet the wind will take no account of these precautions, and will twist and sway the poor shrubs to and fro, round and round, till they are at last either uprooted, or all the anchoring roots are twisted or severed, and the plant ruined or may be killed. The smaller, therefore, the stuff chosen the better, and my experience also compels me to say, that the rule as to early planting, so wise in the case of inland work, must in our particular case be ignored, so as to let the strong gales of winter and the drying east winds of March pass; and then towards the middle of April up to the end of May do your work, first using your trees and deciduous shrubs, and finishing with the few Conifers, and lastly the evergreen shrubs.

No doubt, knowing ones among the local authorities will severely criticise, and remark, "You are supplying poor, undersized stuff;" but try and turn a deaf ear to all this, and "gang yer ain wa'," as my Scotch friends say, for in the end you will be right.

Having provided a little for screening with low banks and hedges, let us now take the Conifers, of which very few thrive by the sea. Among Pines, as its name indicates, Pinus Pinaster or maritima ranks first, but, unfortunately, this is such a bad subject to transplant, that from the open ground nothing over 1 foot in height is safe, and if in pots, 2 to 3 feet is ample; but in the latter case, let the planter beware, as in the majority of cases such plants will be corkscrew rooted, and so may blow out of the ground unless securely staked for a year or two. Next to this ranks the Pinus Laricio, a far more handsome Fir from Corsica and the Mediterranean coast; and thirdly, the dark and handsome Pinus austriaca, but this must be planted quite away from the spray line, or it gets browned and unsightly. [In our experience this is the best of the Pines for seaside work. ED.] The Scots Fir (P. sylvestris) does not thrive by the sea in the south, though its dwarf sub-variety, called in nurseries Pinus montana, will grow where not exposed directly to the sea-breeze. [Among true Pines, P. inops, P. contorta, and P. insignis, do well on the south coast. ED.]

Of all Conifers that really thrive on our coasts, none exceed in luxuriance and beauty Cupressus macrocarpa, or Lambertiana; though under the latter name, I grew a much brighter green shrub than macrocarpa for years, the stock-plants of which, if my memory serves me, came from the late Mr. T. Cripps, of Tunbridge Wells.

This was certainly different from macrocarpa, grown side by side in the nursery, not only by its brighter green colour, but its more slender and compact growth. Whatever we may call it, there can be no doubt of its suitability for seaside work, its only drawback being that it is very apt on rich soils to become top-heavy, the root not having fibre enough to anchor it firmly, unless it be planted on a rocky stratum, when, as our editor suggested in a former paper of mine, the woody, tough roots find their way between the crevices of the rock, and firmly hold the Cypress in the soil. This fault is often aggravated by using plants that have made corkscrew roots in their nursery pots, and such, even with the most careful planting, are apt to be blown over by strong winds, even after some years have passed since the planting. Select, therefore, small specimens of this Conifer, and so avoid after-disappointment.

The Nootka Sound Cypress, Thuiopsis borealis of nurseries, Cupressus Nootkaensis of Veitch, is a good Conifer where it can be planted in a position not too much exposed to sea gales, and forms a diffuse though elegant pyramidal specimen where it is allowed space to develop; but a more compact, and perhaps quite as hardy shrub is the Chinese Juniper (Juniperus sinensis), and a sub-variety of the Red Cedar (Juniperus virginiana), called J. Schotti, seems to battle with and resist salt-laden gales very fairly.

To finish the Conifers, mention must be made of the Japanese Retinosporas; if we except the soft plumose section, all can be planted near the verges or paths, and make a most effective finish where the glaucous blue kinds, as Retinospora ericoides is contrasted with golden-tinted sorts, as "obtusa nana aurea," "Tetragona aurea," &c.

None of the Yews are entirely satisfactory, though the Japanese and Korean varieties of Podocarpus have stood well in most cases, and the Prumnopytis elegans may be planted here and there to give grace and variety to the work.

Now come the numerous evergreen and sub-evergreen shrubs, and for the south and west coast, as has been before stated, nothing surpasses the Euonymus japonica, all the varieties of which should be used, the erect growing green and variegated sorts as single specimens, and the green and variegated species — radicans, and radicans variegata, utilised as neat edging plants, or where rockwork is introduced, or rocky banks utilised, and I certainly approve of this wherever practicable; plant these in every available pocket or crevice left between the stones or boulders. Among the very best of the first-named, select Euonymus ovata and ovata aurea, but the silver-margined sort is very tender, and is, indeed, no great acquisition. A new kind, called on the Continent Sieboldiana ignota, though carrying very handsome large leaves, is only fit for the cool conservatory or orangery. Scarcely one of the Laurels is entirely satisfying, but the two best are called caucasicum and rotundifolium. The Aucuba japonica should only be planted where it can have partial shade and shelter, and then the green forms viridis (ovata), both male and female, are to be preferred, as they are stiffer and more compact than any other, and when covered with their large red fruits are really handsome.

Among berry-bearing shrubs Cotoneaster Simonsii deserves a place—even when raised from seed they soon make neat little plants, and fruit freely; while for foliage contrast the silvery-leaved Orache, Atriplex Halimus and portulacoides, or canescens, which may with advantage be dotted here and there among the green shrubs. *Experience, May* 30, 1899.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

LÆLIA PURPURATA SCHRODERI.

THIS puzzling section of Lælia purpurata, so widely different from the type, has caused some to regard it as a distinct species, or probably a hybrid of L. grandis. The late Professor Reichenbach's L. Wyattiana is very close to this, and the intermediate forms between it and the typical L. purpurata leave no excuse for separating either from the species.

A fine flower of L. purpurata Schroderi is sent by H. Cary Batten, Esq., Leigh Lodge, Abbot's Leigh, Bristol. The sepals and petals are white; the lip also white, with a slight rose-coloured tinge in the centre, behind which the tube is tinted pale yellow, with fine, dark purple lines.

CATTLEYA MENDELI.

This is the favourite Cattleya of many Orchid-growers, not only on account of its beauty, but because it is a grateful plant, that always rewards the gardener for the care bestowed upon it. In most collections its flowers are now among the most admired of those in bloom, and many and varied specimens have been received.

One of the most beautiful is sent by Mr. Richard Cairns, gr. to J. M. White, Esq., Balruddery, near Dundee. The sepals are white, with a slight rose flush; the petals are clear white, crimped slightly, fringed, and measure over 7 inches from tip to tip. The handsome lip is yellowish-white on the outside, and bright yellow with rose-coloured lines inside, the front lobe being bright rose-purple. This bloom was slightly injured in expanding, but it promises to be even better when fairly developed. *J. O'B.*

BIFRENARIA HARRISONIÆ ALBA.

The type form better known as Lycaste Harrisoniæ was at one time a prime favourite in gardens, and a good plant for an exhibition. As with many other Orchids, when white varieties appeared the words "alba" and "eburnea" were applied, although all such flowers possessed more or less of rosy-purple tints on the lateral lobes of the lip. Recently there appeared in Sir Trevor Lawrence's collection, a form with fine clear white flowers possessing a yellow tinge on the lip and callus, and for this variety, distinct though it was from the original, the name "alba" was retained in order to avoid a needless multiplication of names. A fine inflorescence and of a similar uniform, clear white, has been sent by Joseph Broome, Esq., Sunny Hill, Llandudno, who also sends a magnificent Cattleya Schilleriana

DENDROBIUM NOBILE VIRGINALE.

A flower of this beautiful albino of Dendrobium nobile, sent by Mr. Edge, gr. to J. Leemann, Esq., West Bank House, Heaton Mersey, shows what was at one time thought to be very improbable, viz., a fine clear white flower, without any other colour than a tinge of pale yellow on the lip. The flower is large, and of excellent shape, and it measures nearly 4 inches in width, with petals at their broadest almost 1 inch in width. The growth of the variety is said by Mr. Edge to be free, so that an increase may be looked for shortly. The bloom is identical in shape with the only other albino of D. nobile, viz., D. n. Ashworthianum, illustrated on p. 203 of the *Gardeners' Chronicle* for April 2, 1898.

ALPINE GARDEN.

ANEMONE ALBANA.

OF the Anemones belonging to the Pulsatilla section, all of which are desirable in gardens if they will flourish, I have found none so satisfactory in its habit and the readiness with which it adapts itself in my garden to any conditions and surroundings, as one I have cultivated for many years as A. albana. I think it first came from seed sent by Mr. W. Thompson, of Ipswich. It is a dwarf plant with much-divided leaves, like the native A. Pulsatilla, and flowers about the end of April, when grown 4 to 6 inches high. The flowers are nodding, in the form of a cylindrical cup, somewhat compressed towards the mouth, and are produced very freely; this year their abundance is remarkable, on one clump, not more than 9 inches across, there are now about 100 flowers and buds. The plant does equally well on the rockery and the level border, but like the rest of its class, prefers an exposed site. The seed-head, like that of all the Pulsatillas, spreads into an ornamental tuft, and seed ripens in abundance, comes up readily, but does not flower till the third year. The colour of the flower is uniform dull ochreous yellow, leaving much to be desired for brightness, but in spite of this defect, the excellent habit, causing the plant at every stage to look neat and healthy, makes it acceptable in spring, and it lives in the same spot for many years.

Having enclosed specimens to verify the name, I may add a few words concerning its rather doubtful identification. A. albana (Steven), named, of course, from the Caucasian Albania, is not found in Europe, but extends all across Central Asia, from the borders of Armenia to the south-eastern limits of Siberia, being so abundant on the confines of Thibet, that the note of a recent traveller there describes the area of his tent as entirely carpeted with it. It is exclusively a high mountain species, differing in this respect from A. pratensis, to which it is nearly allied, but which is a lowland plant. In Hooker's *Flora of British India*, vol. i., p. 7, A. albana (Steven) is described as not descending below 15,000 feet on the Himalayas, and as having flowers of "dull red-brown." Sir J. Hooker considers it "probably an alpine state of the European A. pratensis." E. Boissier (*Fl. Orientalis*, vol. i., p. 10) gives A. albana (Stevens), "floribus flavidis et cœruleis" (yellowish and blue); whilst De Candolle, who assigns the same wide area to the species as Hooker and Boissier, gives (*Prodromus*, vol. i., p. 17) A. albana (Steven) "flores albidi aut ochro-leuci, nec purpurei (flower whitish, or dull yellow, and not purple). I have never been able to obtain a purple-flowered A. albana, and am curious to know whether the Herbarium at Kew contains any purple specimens. Also whether there are any in that collection of the colour described in *The Flora of British India*. A. albana, with purple flowers, if it retained the habit of the dull yellow form, would be an acquisition worth having for gardens. *C. Wolley Dod, Edge Hall, Malpas.* [There are several specimens of A. albana with purple or violet flowers in the Kew Herbarium, and on the whole their flowers are rather larger than those of the typical ochreous form. The Indian plant is noted as being purple on one label. ED.]

THE FERNERY.

BRITISH FERNS FOR CONSERVATORIES.

WALKING round my fernery at this season of the year, and noticing the rapidly unfolding beauties of the numerous varieties, their freshness, delicacy, and multiformity, it becomes more and more a puzzle to me that so few people avail themselves of these lovely native plants in their varietal types, while so many use the common ones. Although I must plead guilty, if guilt be in question, to the enthusiasm of the specialist, which sometimes implies blindness to demerits as a set-off to keener appreciation of merits, I cannot, for the life of me, conceive an adequate reason for the neglect which this beautiful branch of native horticulture undoubtedly suffers. That they are not in favour with the nurserymen is certainly a factor in the problem. Exotic Ferns, which can be rapidly brought into marketable form under warm culture, pay them better to raise than do hardy ones, which resent forcing, and take, consequently, much longer to develop. The fact, too, that British Fern-fanciers form a sort of clique, prone to swell their collections by exchange rather than by purchase, is another thorn in the side of the trade, and a consequent impediment to that popularisation of the plants which trade hands achieve by advertisement and exhibition, when the demand justifies both by profitable results.

There was, however, a time when neither of these factors, nor both of them together, sufficed to check business. British Fern varieties were the fashion, just as Orchids are now; new things fetched fancy prices, buyers were plentiful, and the gems of that day were installed in places of honour in garden and greenhouse all over the country. Fashion, however, is a fickle thing; and presently, due largely, I believe, to the swamping of the market with indiscriminate seedlings, ugly curios rather than "things of beauty," a reaction sets in, from which the plants still suffer.

I am confirmed in this view regarding the quality of the Ferns sent out, by perusal of Sims' catalogue of the time, in which descriptions which set my teeth on edge prelude prices which, were I a seller, would make my mouth water. The veriest rogue seedlings, depauperate abominations, have several lines of description, and portentous names, and taking the whole catalogue from end to end, I am safe in saying not 10 per cent. were worthy to survive pricking out. In point of fact, it is since that period of fashion that the best things have been found or raised. In the interim a coterie of constant admirers has stuck to the cult, some adding to the store of gems by assiduous hunting in ferny localities; others by raising and selecting on stringent lines, and some doing both; the end results being a considerable elimination of the worthless, and such an enormous addition to and improvement of the really symmetrical and beautiful forms that no comparison can now be instituted between the best of the "fashion" period and the best of to-day. Quietly, and, as it were, behind the scenes, the connoisseurs have been busy ever since, and the result is as great an advance in form and quality in our native Ferns as has been attained in floriculture during the same period, which is saying a great deal. This advance, too, has been all along the line, and not confined to one or two species or varietal branches. The Hart's-tongues, Lady Ferns, Male Ferns, and Shield Ferns, have all participated in selective improvements, and contributed their quota of superior finds.

I do not propose to myself to enter at length into these in this article, but rather to emphasise the fact of their great excellence, and the pity that thousands of cool conservatories, unfitted by their exposure for the proper growth of flowers, are not devoted to the culture of these charming substitutes. In these days of extension of brick and mortar, most of it necessarily on formal and restricted lines, the attached conservatory is very often an adjunct, quite independent of fitting aspects. The houses in a road face north and south, and the conservatories do the same, half of them, of course, getting but transient glimpses of sunshine, or none at all. Here is the ideal British fernery. No hot-water pipes are wanted, for the plants are as hardy as grass, the constant shade, death to flowers, is life to Ferns, and with a judicious arrangement of staging, and perhaps a little rockwork, a few dozen good varieties will give a maximum of pleasure with little trouble. If space be limited, there are dwarf congested forms to fit; and if be extensive enough, grand specimens of the larger kinds do yeoman's service in the way of decoration. It is, indeed, one of the great charms of our British varieties that their size has so great a range that within one and the same species we may have full grown dwarf specimens, condensed gems an inch or two high in thumb-pots, cheek by jowl with grand relations 3 or 4 feet long in the frond, and spreading into as much, or more, in all directions. Lastrea pseudo-mas cristata as the giant, and L. p.-m. crispatissima in the Male Ferns, Athyrium f.-fœmina var. percristatum, and the diminutive Edwardsii, among the Lady Ferns, and a finely grown specimen of the crispum Hart's-tongue side by side with S. v. Kelwayi densum, a tiny ball of moss, are all examples of this, and there are all grades between.

Where space is restricted and accommodation scanty, a single species, like the Hart's-tongue, would suffice to stock the place, and be replete with interest, so versatile is the species; while the average size of specimens is moderate enough to admit of a greater number of forms than the other species named would allow many to their greater spread and dimensions. To those who have such shady conservatories, I strongly advise the acquisition of a few good varieties; not the common Ferns hawked about the streets, or ignominiously boxed and bundled under nurserymen's shelves; these are simple Nature's raw material, and in this connection are to be severely let alone, as a check upon the Vandals. Pot the acquisitions carefully, water them properly, keep them steadily one way to the light, not twisting and turning them about, as is often done, to their inevitable distortion and spoiling; and I am sure they will repay the care bestowed far and away better than sickly lanky Pelargoniums or other flowers which too often occupy such situations, and repay their cruel owners by a liberal crop of greenfly in lieu of other verdancy. In the one case we suit the tenants to the environments, since Ferns are eminently shade-loving plants; in the other, we are at war with Nature, since flowers are the children of the sun. The excuse, therefore, of flowers or nothing, falls, as we have seen, to the ground, unless the individual be so wedded to bright colours, that the quieter harmonies of frondage, and its delicate tracery and tasselling, be altogether thrown away upon him. In that case we shall never make him a convert, for it is pre-eminently "the harvest of a quiet eye" that repays the British Fernist. *Chas. T. Druery, F.L.S., V.M.H.*

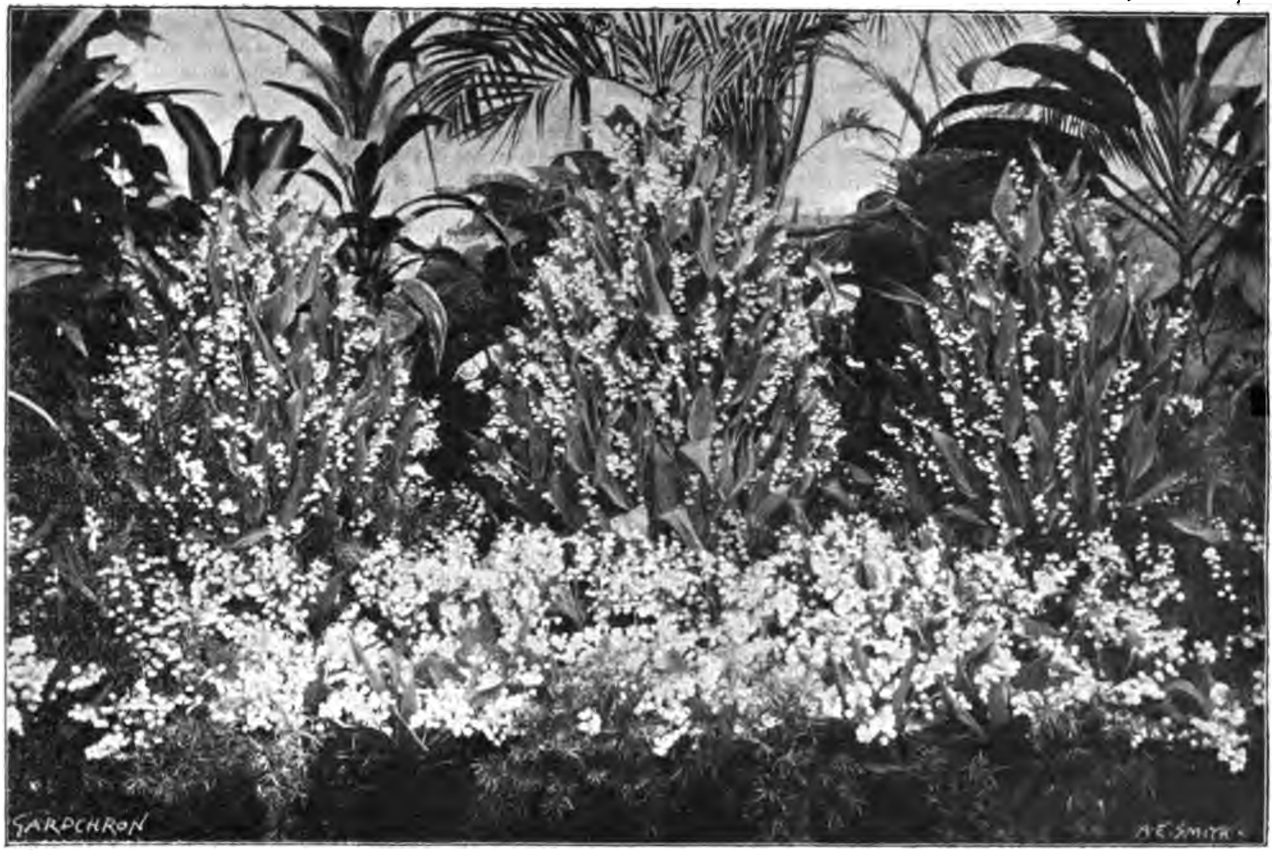


FIG. 130.—RETARDED LILY OF THE VALLEY.

(Exhibited at the Temple Show by Mr. T. Jannoch, Lily Nursery, Dersingham, Norfolk.

NOTES ON WYASTONE LEYS.

Tourists and others who have passed through the Wye Valley by rail may have noticed between Symonds Yat and Monmouth, a pretty stone residence standing upon a plateau on the steep west bank of the river surrounded by well dressed grounds, and backed up by high rocky hills, furnished with specimen trees and shrubs. The mansion referred to is Wyastone Leys, and belongs to J. M. Bannerman, Esq. Few seats naturally possess such grand surroundings, and command such views as does this. The magnificent stretch of scenery to be seen from here, embracing as it does some of the most beautiful to be found in Monmouthshire, Gloucestershire, and Herefordshire, is a grand spectacle; while near at home the Wye Valley itself, which, with its silvery river, rich pastures, and rock, and wood-clad banks, can be viewed both up and down for a considerable distance, affords a charming picture.

The most attractive feature in the gardens at the time of my visit was afforded by hardy bulbous plants, which are used in great numbers and variety, and under various conditions. The exceeding freedom with which they blossom proves that the light, rich, and warm soil of the place, meets their requirements in every way. Many of them have been undisturbed for years, and have formed large clumps. This refers particularly to Hyacinths, Tulips, Triteleias, Anemones, Fritillaria imperialis, Leucojums, Muscari, Scillas, Jonquils, and Narcissus (Daffodils, poeticus, and Polyanthus) in many varieties, which make a gorgeous display mixed with herbaceous plants in the long borders; N. Macleaii, a small white-flowered species with a bright yellow crown, struck me as being particularly pretty and distinct. A pleasing effect was produced by Narcissus in variety, by Leucojums mixed freely with Primroses on the grass amidst specimen trees and shrubs, upon steep banks, and in natural bays at their feet; this is carried out in a way to imitate nature, and with success. It deservedly merits copying, although it is not in every place that the character of the ground would enhance the effects as is the case here.

The undulated contour of the land is admirably suited to display the beauties of flowering shrubs, but my visit was paid too early in the season to see many of these in blossom; nevertheless, groups of Forsythias and some early Rhododendrons were conspicuous, and some tender genera not often met with were observed growing amongst ordinary shrubs, where they have been for years. Of these, Exochorda grandiflora (syn. Spiræa grandiflora), indigenous to China, was flowering freely; its choice white blossoms are very sweetly scented. Piptanthus nepalensis, a handsome leguminous shrub from the Himalayas, was unfolding its beautiful racemes of yellow flowers, which were produced in abundance. It was growing in a sheltered situation, and many seedlings from it had sprung up around. Choisya ternata is perfectly hardy here—at least, several big healthy bushes, thickly beset with flower-buds, have been for several years in their present open positions.

I may mention that under glass Maréchal Niel and Niphetos Roses, planted in borders and trained near the glass, were flowering splendidly. Complaints about the constitution of the former are often made, but here a sturdy plant has been in its position for at least twenty-five years. I was pleased to see some old, commonly neglected plants valued and well cared for, such as Begonia corallina, a handsome woody-stemmed species, possessing clusters of coral-like flowers, and growing as a pillar-plant; while B. fuchsioides was used in a similar manner, and was almost equally beautiful. Amongst Orchids, some plants of Vanda teres, planted in groups in crocks and sphagnum-moss placed in shallow boxes and baskets, were vigorous, and thickly furnished with flowers on the point of opening. They are grown, as is the usual practice now, fully exposed to the sun.

Tomatos in a low house were particularly well grown; the varieties were All-the-Year-Round and Ham Green Favourite. The former, which has medium-sized fruit, in large clusters, has proved to be an exceptionally prolific winter-fruiting variety; Ham Green, although not so free-bearing during winter as its companion, has large fruit, and is reliable in summer. Royal Sovereign Strawberry, growing in pots, were carrying fine crops, some of them being ripe, large, and well coloured; and the trees in an early Peach-house were bearing heavy and regular crops of fruit.

The garden in each department denotes that it is skilfully managed by Mr. Phillips. *Thos. Coomber.*

FLORISTS' FLOWERS.

SUMMER-BLOOMING VIOLAS.

I still hold that the best summer results come from plants put out in August or September of the previous year, or even earlier. At the present time, I have most effective clumps a foot in diameter that are masses of bloom, and with a top-dressing they will continue to flower freely all the summer. They are plants which were planted in the open a year ago, and they are in a fairly stiff soil, in which they root deeply and freely. In the case of a light soil, it would be best in some cases to trust to younger plants put out in March or April. When plants are placed in the beds or borders as late as April and May, unless they are encouraged in every way, they fail to get a deep hold upon the soil before hot weather sets in, and they frequently fail when their service is most required. My contention is illustrated in a striking manner in Messrs. Veitch & Sons' Langley Nursery. There are two borders of Viola Blue Bell, one on either side of a broad walk; these plants occupied this position all the previous winter, but the variety goes on flowering right up to the autumn. It is these qualities of persistency and continuity that are wanted in too many of the new varieties. It appears to be thought that the main use of the Viola is for exhibition, and not in the flower garden. New varieties are so disappointing that I have given up buying them. The old sorts hold the field for bedding purposes—Countess of Hopetoun, J. B. Riding, William Niel, Bullion, Sylvia, True Blue, Duchess of Fife, &c. What is wanted is a systematic trial of all the leading varieties; the whites by themselves, so as to afford close comparison; the yellows, and other colours or combinations, similarly treated; and the plants put out in September, so as to afford a good winter trial of endurance. But this trial should be carried out in an open, breezy spot, away from the effects of London fogs. As fogs prove harmful at Chiswick, no such trial can be attempted there. *Florist.*

Auriculas in Pots.

Auriculas were in many cases quite late in flowering this season—in the last week of May. I have such fine alpines as Fred Knighton, Magnet, Winnifred, and Sunrise, only just in flower, but that may be owing to my plants being in a north house, and getting but little sunshine. Fred Knighton is a grand late alpine, large, of the best form, and brilliant in colour. But there are many fine alpines now, and though Mr. C. Turner has somewhat dropped out of the field as a raiser, Messrs. Douglas, Phillips, and others, are active in adding to our lists. We are strong in golden centres, but still a little weak in white centres. The two best I have bloomed this season, are Desdemona and Winifred, both raised by Mr. Turner; they are white centres, and the white lasts well, while the marginal colour is fresh and brilliant. The late Mr. J. Gibson, of Reading, raised several alpine varieties, but as he had set up a high ideal, he put aside flowers that others would have had no hesitation in naming. He sought to improve the white centres, using Winifred both as a seed and pollen parent; and a few of his seedlings came into my possession at his death, the best being Tillie. This is a very large, finely-formed, stout flower, with a broad and massive, deep-shaded purple margin, and a living white centre; the contrast is remarkable, but the white centre is a little narrow in its diameter. It promises to make an exceedingly useful seed-parent. It is to be hoped that we shall soon see the last of the confused creamy-white centres, on some of which the young and the old flowers show two distinctly different stages of development. Many seedlings otherwise good have to be rejected on account of this defect.

The notched segment of the corolla is rapidly disappearing. It lingers longer in the case of the white centres, and especially with those of the most delicate mauve and purple tints. All white-centred flowers—those whose centres are really white—are frequently of thin substance. We want the solidity which characterises Mr. Gibson's Tillie; we want also the diameter of the centre to be equal to the zone forming the margin.

There is a tendency in some of the newer seedlings to show a wide, irregular, gaping tube. While the tube is not of such first importance in the case of the alpine as in the self and edged show varieties, it should yet be equal to the other parts; and a gaping tube breaks into and robs the centre of its proper proportions. The scape supporting the truss is rather long in some of the new varieties, a fault conspicuous in the case of the beautiful blue self Mrs. Potts, but that will be remedied in course of time. Some may regard these points as trifles, but it should be remembered that the Royal Horticultural Society has set up an authoritative schedule of qualities in the Auricula, and it should be the aim of raisers to approach as nearly as possible to them. They are, therefore, not trifles; and to any objector it may be said, "Trifles make perfection, and perfection is no trifle."

The alpines which now win at Auricula shows are more or less shaded. The self colour is required in the show type; it is a form of incompleteness in the alpine; as the white or golden centre should be surrounded by a margin, shading from dark to light. Self alpines were recognised when there were but few named varieties; now the latter are many, and there is no need to fall back upon the self. As any shading on the show self is a grave defect, so the self colour is a grave defect in the alpine. This is the recognised difference between the two types. *R. D.*

NOTES FROM A SCOTTISH MANSE.

(Continued from p. 275.)

During the last fortnight I have had the great privilege of visiting many places of horticultural interest; such, for example, as the Royal Gardens at Windsor, where the fruit grown under glass is the predominant attraction, and where for the first time I saw growing the Banana, one of the most valuable of tropical fruits. I much regretted, on that occasion, the absence of Mr. Owen Thomas, who had gone to London to superintend the floral decorations of Buckingham Palace, during the temporary residence there of Her Majesty the Queen; but I received great kindness from his lieutenant, Mr. Edwards, and his intelligent assistants. I was somewhat surprised to learn that the Almond-tree is not grown in the Royal Gardens, for this is by far the most beautiful of spring-flowering trees. I also visited the Royal Nurseries of the Messrs. Turner at Slough, still famous, as of old, for Carnations, Roses, and Pelargoniums; the great Orchid establishment of Mr. F. Sander at St. Albans, and the splendid collections of the Messrs. Veitch at Chelsea, both of which are veritable epitomes of the flora of the world. I also saw once more, and greatly admired, Mr. Wm. Bull's Orchids; and Mr. William Paul's Roses at Waltham Cross, some of which were subsequently exhibited with grand effect at the meeting of the Royal Horticultural Society in the Drill Hall, Westminster, where I had the pleasure of meeting, for the first time, with one of my kindest friends, Mr. Harry J. Veitch.

Before leaving the Modern Babylon, I made a pilgrimage to Surbiton, one of the most charming places in Surrey, where, at the Long Ditton Nurseries, Mr. Wm. Barr, of Covent Garden, showed me his Darwin Tulips, the hybrid Narcissi, including "Victoria," and other highly fascinating flowers.

On my return to Kirkmaiden Manse, I found my own garden in wonderfully good order, considering the fact that during my absence (which, however, was not long), my industrious gardener had, like some of the English soldiers who fought at Prestonpans, been wounded by a scythe, though in a somewhat different and more accidental way. Now, however, that he has recovered his wonted energies, and has my assistance, things are assuming a brighter appearance, and the flowers find themselves in perfect harmony with their surroundings. Nothing impresses me more at present than the rapid development of Lilium giganteum, the largest plant of which in my possession has been grown from an offset for four successive seasons, and will bloom this year. It is a very powerful specimen, and promises to attain to a commanding height. The development of this giant is such as to astonish all visitors to my garden. This is owing, no doubt, largely to its nature, for the characteristic of which I speak is one which I have observed in dryer and sunnier seasons than this; but doubtless its growth has also been considerably accelerated by the recent heavy rains, which have been followed providentially by brightest sunlight during the last few days, though the wind keeps cold. Lilium giganteum, which is of Himalayan origin, has this peculiarity: that in the production of its immense stem and majestic flowers it exhausts the massive bulb; but it is perpetuated by offsets, whose energy in the generation of foliage is quite visible before the aspiring parent of these comes into bloom. I have several other Lilies which have grown with almost equal rapidity; especially the Chinese Lilium Henryi, originally discovered by Dr. Henry. Lilium speciosum Kraetzeri, which will come into flower very early this year, and several stately specimens of Lilium auratum, which, I anticipate, will bloom in July.

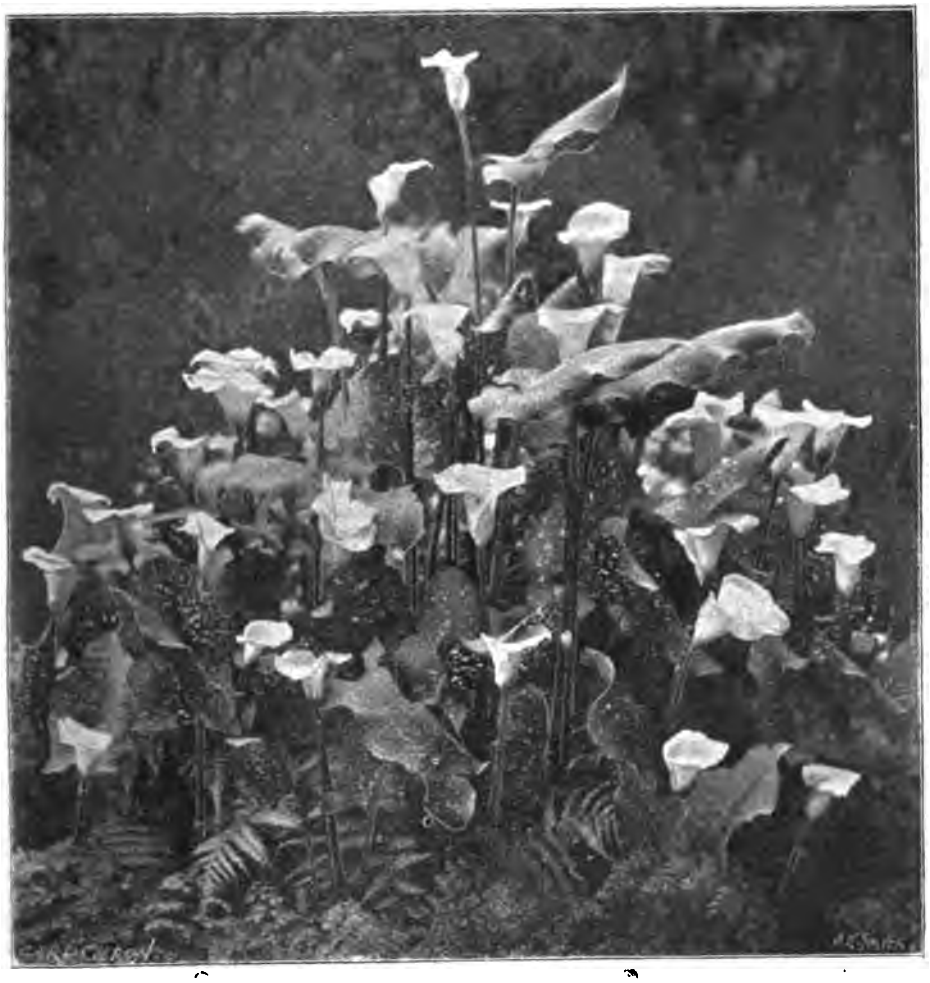


FIG. 131.—A GROUP OF RICHARDIA ELLIOTIANA: COLOUR OF THE SPATHES BRIGHT YELLOW.

(Exhibited by Messrs. W. Cutbush & Son, Highgate, at the Temple Show.)

My Spanish Irises, so long seemingly inactive, my Ixias and Sparaxis—beautiful flowering plants of African extraction—are beginning to show definite signs of activity; and I hope to have their bright beauties contemporaneously with those of Lilium candidum, one of the fairest and most fragrant Lilies of the garden, and with the first efflorescence of the "regal Rose." There are many eminent professional horticulturists who have hitherto made no attempt to cultivate Ixias, because they regarded them as delicate plants. I find, however, that they preserve their foliage marvellously during the winter, and are not much affected, much less than the Montbretias, by the vernal frosts. Of almost equally vigorous constitution are the Californian Calochorti, of which the finest (and latest) are the gloriously-tinted "Mariposa Lilies," which flower in July. But even the earlier forms, though less exquisitely painted by the hands of gracious Nature, are exceedingly interesting. They may have an affinity to the family of Tulips, but they offer a very striking contrast to these.

The foliage of many of my Roses is at present so beautiful, that flowers seem to be almost superfluous for artistic effect. Supreme among these are such decorative varieties as Madame Joseph Combet, Mrs. W. J. Grant, one of the grandest of the Newtownards introductions; Madame Laurette Messimy, Madame Charles, and the luminous La France. In this season of sunshine, growth, and brightest hope, it is difficult to realise the words of George Herbert:

> "Sweet Rose, whose hue angry and brave,
> Bids the rash gazer wipe his eye;
> Thy foot is ever in the grave,
> And thou must die."

The reign of the Narcissi, so long and so beneficent, is nearly over; but the intensly fragrant Narcissus poeticus is with us still. *David R. Williamson.*

APPLE SPRAYING IN NOVA SCOTIA.

Potash Spraying, to clean the bark of moss and lichen and destroy insects lodging in the crevices of the bark in Canada, is mostly done during April, before the buds open. For this purpose, one third to 1 lb. crude rock or powdered caustic potash to one gallon of water is employed. The men using the strong solution wear old rubber mackintoshes to protect their clothes, and sometimes indiarubber gloves. In some cases a rubber cover is strapped over the horse to protect it. The Apple trees are sprayed all over to the topmost branches, say, 30 feet or more high. If the trunks only are to be washed, this may be done at any time of the year, either in early spring or, perhaps better, about May or June, when the young scale insects are hatching out and beginning to move about. A vegetable fibre lime-wash brush is used for this purpose. The effect of the potash-wash is to give the trees a healthy bark. I have seen the trunks of young trees thus treated yearly shining in the sun as if varnished.

Copper Sulphate Spraying.—The object of this is to destroy the spores of "black spot," or "scab," the most serious fungus disease that attacks the leaves and fruit of the Apple, spoiling the appearance of the latter, and causing it to crack, interfering with its growth. Copper sulphate at 3 lb. to 40 or 50 gallons of water is used any time before the buds expand. Later on the sulphuric acid must be neutralised by lime, or the foliage will be burnt.

Paris Green Spraying to destroy chewing insects, such as the caterpillars of the Winter Codlin, Ermine, and Lackey moths.—If Paris Green is used alone it is desirable to add twice the weight of lime to counteract the possibility of any free arsenious acid which may burn the leaf. The purity of Paris Green may be tested by ammonia, which should dissolve it entirely, producing a blue liquid. A quarter of a pound of Paris Green to a 40-gallon barrel of water is the usual proportion used. In using Paris Green one commences by weighing out ¼lb., and then measuring this out in spoonfuls to see how many it is equal to, so as to be able to measure it in future as being less trouble than weighing each time. One places the required quantity in a cup, adding water and stirring to mix it to a paste. Then add it to a pailful of water and pass it through the strainer, adding it to the water or Bordeaux Mixture in the barrel.

Bordeaux Mixture and Paris Green are the most commonly used combined fungicide and insecticide. The proportions generally used are:—

4 lb. copper sulphate,	4 oz. Paris Green,
4 lb quick lime,	40 gallons water.

This is used throughout the season, the first spraying being when the leaf buds are open, but before the flower buds expand, the second after the blossoms have fallen, afterwards at intervals of two or three weeks, if there is appearance of fungus on leaf or fruit, or caterpillars eating foliage. The number of times necessary varies with season and variety, from two to six times.

The usual way of making up the Bordeaux Mixture in bulk is to take a 40-gallon paraffin cask, fill it with water, suspending in it 40 lb. sulphate of copper contained in a sack or basket. This gives a strength of solution of 1 lb. to one gallon. Another barrel is used for the lime, which is slaked and stirred up, forming "lime putty." This is kept covered with a little water. When required for use the 40-gallon barrel to which the pump is fixed is partly filled, say one-third full, with water. Four gallons of the copper sulphate solution are added, and then an equivalent of about 4 lb. lime is stirred up with water and strained through a brass wire strainer at the bottom of a funnel, used in filling the barrel. The mixture in the barrel is stirred, and many farmers test to see whether enough lime has been added, so as to avoid adding more lime than necessary, and possibly clogging the pump. For this purpose a solution of ferrocyanide of potassium (1 oz. in a pint of water) is used. A cupful of the mixture is taken from the barrel, and to this a few drops of the ferrocyanide solution are added. If it turns blackish-brown, more lime should be added; if the sky blue colour is unchanged, enough lime has been added. The barrel is then filled up with water, or if Paris Green is to be added it is now put in.

Soap and Paraffin are used for the destruction of sucking insects, such as aphis, scale and woolly aphis. This is not often used, as these insects are not often a serious pest. Perhaps the best recipe is the Hubbard-Riley emulsion, made by boiling half-a-pound of hard soap in one gallon soft water; add two gallons paraffin, and churn the two together for five or ten minutes. For use dilute this with from four to twenty parts of soft water, according to whether it is used to wash the bark, or as a spray when the tree is in leaf.

The Pumps used are force-pumps, fixed to ordinary paraffin casks holding about 40 gallons. Their working parts are of hard brass, and they have an agitator paddle. Two of the best pumps I saw were "The Pomona," made by the Goulds Manufacturing Company, Seneca Falls, New York, and "The Eclipse," by Morrill and Morley, Benton Harbour, Michigan, U.S.A. A moveable square box funnel with fine brass wire mesh is used for straining the lime, &c. A rubber hose-pipe about 10 to 15 feet long is used, with a bamboo extension rod 8 to 10 feet long (this has a tap, a brass pipe passing through the centre of a bamboo), terminated by a double Vermorel nozzle.

I have recently got over one of these pumps, and shall be pleased to show it to anyone interested in spraying. I have had it mounted on wheels like a garden engine, and it works very well. In the Canadian and American orchards the pump and barrel are generally mounted on a cart or a low light waggon, sometimes with a platform, and drawn by a horse through the orchard, one man driving and pumping, the other directing the spray.

Lodeman writes:—"For well-grown trees 25 years old two to three gallons of liquid are required when sprayed before the blossoms open; later in the season, when the tree is in full leaf, four or even six will be necessary to cover the leaves and fruit thoroughly."

Professor Bailey writes that "with a 300-gallon tank drawn by two horses, with three men, one driving and pumping, the other two standing on the rear platform two or three feet above the tank, directing the spray each with a hose pipe, the pump having an automatic stirrer; with this rig five acres of full-grown Apple trees can be thoroughly sprayed in a day."

All the working parts of the pump should occasionally be oiled, also the nozzles.

In using both copper sulphate and potash, iron vessels should be avoided, preferably using wooden pails. Before working with these liquids it is a good plan to rub the hands over with mutton or some other fat not containing salt. Avoid spraying work when the hands have open cuts or sores, and wash the hands well after work. When spraying it is advisable to wear one's worst clothes. A broad-brimmed (straw or rush) hat is of advantage in shielding the face from spray. Spray from the lee side, and only when calm.

Macmillan & Co., of New York and London, have published an excellent book, "The Spraying of Plants," by E. G. Lodeman, Instructor in Horticulture in the Cornell University. *Cecil H. Hooper.*

THE HERBACEOUS BORDER.

ALYSSUM SAXATILE TOM THUMB.

THIS dwarf "Gold Dust" or Rock Madwort is not by any means a new plant, as it is several years since it was first sent out. When first catalogued, one had pleasing anticipations of a miniature A. s. compactum, covered with golden flowers as freely as the larger form, and suitable for the very choicest places among the alpine flowers. The first season's disappointment was mingled with hope that the sparse flowering was due to the plants requiring time to become established. Succeeding seasons have, however, been almost equally disappointing, so that one can only plead that this note is penned as a warning to others not to expect too much. The stature of A. Tom Thumb is quite well indicated by its name. The flowers are produced in smaller corymbs than those of the typical form, and are individually inferior. The habit of the plant is less vigorous in every way, and its poor blooming properties are even accentuated if not planted in a dry and sunny position. I have found no difficulty in striking cuttings taken off, in the old-fashioned way, with a heel, but some of my friends have been less successful in striking them.

ANEMONE NARCISSIFLORA.

Novelties are very well in their way, and one always welcomes their appearance if at all acquisitions. While this is so, those of us who have the opportunity of seeing gardens of hardy flowers, see that it is frequently necessary to bring before their owners well-proved plants of beauty. Such a plant is Anemone narcissiflora, the Narcissus-flowered Windflower, which, one may safely remark, ought to be more widely known in private gardens. The rockery is the place recommended for it in some standard works on gardening, but it may be quite as well grown in the border as in the rock-garden. As this is written there is a nice plant in bloom in one of my borders, where it has been for several years, and I have occasionally met with it in similar positions, but in a heavier soil. A. narcissiflora is very distinct in its way, with its umbels of upright, white, or whitish flowers, produced on stems from 8 inches to over a foot high.

A pretty feature of some of the forms is the tinge of purple on the outside of the flowers. The whole appearance of the plant is, indeed, attractive, its slightly woolly look and the palmate leaves making it one of some character. It is perfectly hardy, and may be increased by division.

ANEMONE NEMOROSA ALLENI.

I often think that the garden of our friend, Mr. James Allen, at Shepton Mallet, may best be likened to a laboratory for the fashioning of precious gems. Those of us who have the privilege of corresponding with him, and of growing his new flowers, can to some degree realise the work which has been done at Park House, and which, one would fain hope, may long be continued in Mr. Allen's new garden. Snowdrops alone do not comprise the objects of his work, and among other flowers the Wood Anemones are in hand. From the fine A. n. Robinsoniana has been produced the very beautiful A. n. Alleni. This seedling, when one has had it thoroughly tested, is a marked advance on its parent, or anything else we have in the same section. The flowers are larger, more perfect in form, and even finer in colour. The whole habit seems also more vigorous, and the longer it is grown the better is it liked. There are yet other seedlings to come from the same source, but it may be some time before anything yet to come will supersede the beautiful A. n. Alleni. *S. Arnott, Carsethorn, by Dumfries, N.B.*

EVAPORATED VEGETABLES.

THE factory of the British Preserving Company at Rayne stands on a plateau about 200 feet above the sea, on the edge of the London clay, in the county of Essex, upon a gravel bed 25 feet in thickness, overlying a bed of clean, sharp sand, bearing ample water of exceptionally good quality, though very hard. In the erection of the factory great attention was paid to the sanitary arrangements and the comfort of the workers, most of whom are young women. The main hall is about 80 by 30 ft., and at one end is the engine and boiler room, at the other the kitchen or copper room, with storeroom and the workpeoples' rooms beyond. On the north side runs an annexe, in which are various bags for receipt and storage of the raw material and for sundry subsidiary processes. Outside there is a forge, a tin shop, and a large shed for baskets, mats, sacks, &c., which take much room. The most scrupulous cleanliness must be observed. The concreted floor of the main hall is channelled, and laid so that the constant swillings of water pass readily away.

The main feature of the large hall (apart from the shafting and numerous machines connected to it by belting, which first catch the eye) is what is called the drying canal. This runs along one side of the building, and has the appearance of an exaggerated wooden counter. Its internal dimension is about 4 feet square, and throughout its length is laid a small tram line, along which run the wagons containing ten or twelve perforated zinc shelves for the prepared vegetables. Outside the canal runs a similar tram line by which the wagons, having passed through the canal, are returned to the end to be again filled and passed through. A hot blast is driven into the canal by a powerful fan, and rapidly takes up the moisture of the vegetables, so much so that at the further end an exhaust fan with a high number of revolutions is required to extract the moisture-laden air, and expel it through an upcast shaft.

The amount of moisture extracted from vegetables differs largely in various kinds, Onions being reduced to about one-tenth of their original weight, and other vegetables to a less extent. The time and the degree of heat required by each also largely differ, and in the knowledge of this lies much of the success of the process. When the vegetables leave the canal the slices are crisp as biscuit, and a slight re-absorption of atmospheric moisture must take place before they are ready for compressing and packing. For this purpose they are spread on a wooden floor, and here again experience is needful in order to seize the proper moment. It is claimed that all the natural and essential qualities of the vegetables are retained without any diminution by this process.

Having described the most important part first, we will now rapidly follow the process of preparation. Down the middle of the room are tables at which the girls stand, each with two baskets on the floor, one on either side. On the table or beneath it are the various small machines for peeling or slicing, most of them very ingenious. The idea of peeling Potatos in a lathe strikes most people as ludicrous, but it is true. Larger machines for washing Potatos, Carrots, Onions and other kinds by rotatory action, and slicing them, stand round the walls, while a notable Pea-shelling and sorting machine of large dimensions makes a sort of centre. Steam-heated plunging tanks occupy one corner, and large butts of cold water another. The machinery in the conserving room is of the newest description, but being commonly used in this country needs no description. It may be well to state here that the vegetables prepared at Rayne are absolutely free from chemicals, and have passed the Government analyst as perfectly pure.

The principal feature of successfully evaporating vegetables is to wholly extract the water without burning or drying up the fibres and tissues that are in them, otherwise the vegetables will not thoroughly re-hydrate again or re-assume almost their normal size, while no matter how properly and carefully they are cooked they will be harsh and flavourless, and lose their natural aroma and colour. When properly evaporated each vegetable should retain its own peculiar aroma, essential oil, strength, goodness, colour, and flavour.

Almost every kind of vegetable and herb is capable of being preserved by an evaporating process, and if care be taken to get rid of the moisture contained in them they will keep for an indefinite period in any climate, so long as they are kept covered in a tin box, so as to prevent their absorbing the moisture contained in the air.

Radishes, Lettuce, Watercress, and such like vegetables cannot be done successfully, because it is impossible by re-hydrating to get back the crispness, which is their leading characteristic.

The time required for the drying process is from two hours and a half to four hours, starting from a gradual heat up to 45° to 75° Celsius (= Fahr.), such heats varying according to the vegetable dealt with. It is inadvisable, as also almost impossible, to lay down a fixed rule as to temperature required, as the condition of the vegetable, whether a wet or dry season, its growth, and even the soil upon which grown, have to be taken into consideration.

The process of evaporation does not in any way alter the condition of the vegetable so treated either in making it fresher or staler. Fresh vegetables will come out from the process fresh, and stale vegetables cannot be altered, but will come out stale. The best time to put the vegetables through the process is when they are at their full growth and their nutritive qualities at the highest point. Vegetables grown upon sewage farms or on very highly manured market gardens are not the best for the factory, as in both cases they contain a much higher percentage of water than those grown upon less quickly forcing soil, and it is an open question as to whether they would have such good keeping qualities when grown on the former as on the latter. At the same time it is important to avoid using vegetables that are grown on poor soil, which consequently are a long time growing, and must be necessarily coarse and spongy, in the case of roots and such like, and stringy and tough in the case of Cabbage, &c.

By the evaporation process, all classes of vegetables as they come in season may be preserved and used for culinary purposes, irrespective of seasons, so that Carrots, Turnips, Parsnips, and Onions, these forming perhaps the most useful, may be obtained all the year round in their full nutritious condition and at reasonable prices. Under the old order of things during the months from April to September it is very difficult and expensive to obtain such from natural sources.

When needed for use, evaporated vegetables require soaking in water for from two to six hours, according to the sort. After soaking, they may be cooked in the same way as ordinary fresh vegetables of a similar nature. Vegetables required for soups need not be soaked so long as those for the vegetable dish. By adopting a sound and proper process of evaporation, and by taking great care for the cleanliness of all the surroundings, and quickness in dealing with the produce from the first commencement of the process, which is the peeling, to the last, which is the pressing and packing, the colour of each vegetable and its own natural aroma and qualities may be retained without the use of any colouring matter or chemicals.

For army, navy, and colonial use, where vegetables are scarce or impossible to obtain, evaporated vegetables form a splendid substitute for the original article, and beyond question hold their own far beyond any tinned substitute, both in flavour and quality, while they are certainly much cheaper, comparing solids with solids, and very much easier to handle. By hydraulic pressure, which in no way injures them or deteriorates from their value, it is possible to confine a large quantity of evaporated vegetables in a very small compass, which very materially lessens the cost of transport both by land and sea.

As an aid to agriculture, which is still the largest industry in the United Kingdom, the evaporation business will require a little time to firmly seat itself, but as to its ultimate success, an object lesson may be learnt from France, Germany, and America, the two former for vegetables and the latter for fruit. France was the originator of evaporated vegetables, which were first used prominently by them in the Crimean War in the feeding of their soldiers. Since the Franco-Prussian War, Germany has made very great strides in their manufacture, so that now in that country, and in France, factories for evaporating vegetables may be reckoned by the score.

Dried vegetables may be seen and bought in most of the grocers' shops on the Continent, as they have now become universally used by the householders of the great cities and towns. For cheapness, saving of time and trouble in peeling and preparing, for doing away with the nuisance of the peelings and garbage stored in or near the house, evaporated vegetables should be extensively used in London and all great centres of people.

The gold medal and diploma of honour were awarded to the Rayne vegetables at the Universal Food and Cookery Exhibition, held at the Imperial Institute in March last, where they were extensively used in the practical demonstrations. *Paper read by Mr. R. Grafton Salmond at the Horticultural Club.*

GOOD BROCCOLI.

OF late years, there have been some valuable additions to the early and late Broccolis, and few varieties have proved more useful than Model (see fig. 132), and Continuity (see fig. 133). In this country the Broccoli is a somewhat uncertain crop, as the plants are not capable of resisting our severe winters; yet much has been done in respect to obtaining a dwarfer plant, with a shorter leg or stem, and therefore less susceptible to injury by frost. Of course, much depends upon the cultivation afforded the plants, and upon the soil. In light soils they make more growth, and are more readily influenced by the weather; in heavy land, I have secured much better crops.

It is important that the plants be not permitted to remain crowded together in the seed-beds, or the time and strength so lost will affect them most injuriously. I know that it is very well to describe the best system of culture, but a different matter to carry it out, as many growers have to double-crop the land, with the result that one crop is not always cleared before the succeeding one should be put out; and in gardens where labour is insufficient, press of work may delay the planting. In such cases I would suggest that the plants be pricked-off, and much sturdier plants will be thus obtained than when drawn direct out of the seed-bed, and they will suffer much less in severe weather. Another point of great importance to the grower is that such a practice renders unnecessary any heeling-over in the late autumn to preserve the plants, and thus a check is avoided and better heads secured.

Needing Cauliflower or Broccoli all the year round, it is necessary for me to grow those kinds that may be relied upon, and I say that some do not always turn in at the times wished. For many years the best mid-winter variety was Snow's Winter White, catalogued to come in during December or January, and described as the best winter variety in cultivation. Doubtless the original stock answered to this description, but I am unable to get the true variety. As an earlier variety, no one will complain of lack of quality or fixity in Veitch's Self-protecting Autumn, a most valuable introduction, true to name, and a splendid Broccoli in succession to the Autumn Giant Cauliflower. I wish, by sowing later, we could get this variety in mid-winter, but find it impossible.

Of late years my best winter variety has been Sutton's Suberb Early White, which, if sown in April, or on our light soil, will turn in during February; and though not large, it is a most valuable vegetable. I am not in favour of large Broccoli at any season, and they are of poorer quality than the smaller, firm, compact heads, well covered with foliage. The last-named variety is not a large grower, having a very solid head; and I have lifted plants with their heads partially formed, and they have remained good for weeks. Another excellent type, and a good succession to the Superb Early White, is Veitch's Spring White. This is somewhat like the Early Penzance in build, and is an excellent variety for cutting in March; the heads being well protected by the leaves, and the plants are dwarf and hardy, turning-in before the spring varieties if sown in April and planted-out in June. There are others well worth naming, but I do not desire to give a long list; as most growers know, there is no lack of what we may term Spring Broccoli, and I find a few of the sulphur-coloured heads well worth room. I have, for instance, for many years grown the Sulphur, or Portsmouth, and find it valuable for its hardiness, and its colour in no way affects the quality. Another good form is the Penzance, but there are several varieties of it, for with me it varies much in quality, my best stock having come from a large grower who had only this variety for many years. Of course Broccoli stocks become mixed and deteriorate like other vegetables, and there is continual need for selection.

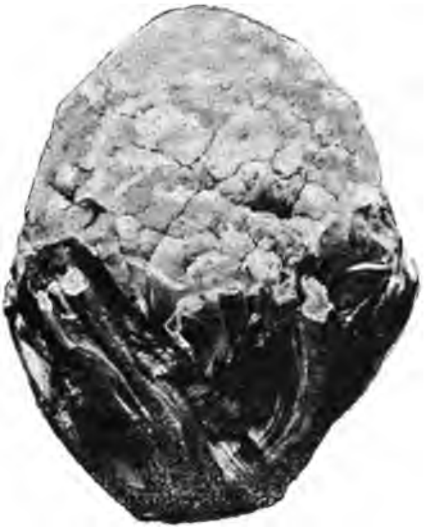


FIG. 132.—VEITCH'S MODEL BROCCOLI.
(*Photographed from life. Much reduced.*)

Veitch's Model (fig. 132) was a great gain on some of the older forms, as with a dwarfer habit the plants are more likely to escape frost. This variety we sow in quantity in May for cutting the following April and May, but this season there were few left for late May use. A still later variety is Sutton's Continuity (fig. 133), and it is not yet much known. It is a very fine type, and the head or flower, as will be seen in the illustration, has a great depth, and is entirely covered with foliage. The variety is a most valuable addition to the later kinds, and I hope to grow it in quantity another season.

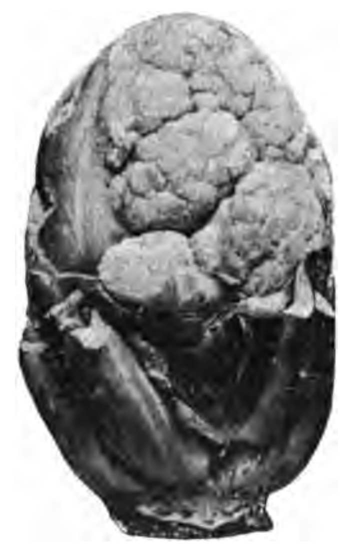


FIG. 133.—SUTTON'S CONTINUITY BROCCOLI.
(*Photographed from life. Much reduced.*)

Late Queen and June Monarch are also valuable late varieties, and very hardy. They are well known, and the last-named is a great favourite in the North, as it continues the supply when all others are over. *G. Wythes.*

AMERICAN NOTES.

PERSIMMONS.

THIS fruit is undoubtedly becoming more popular in America, though perhaps its increase in favour is not so rapid as might be wished. For the most part the Persimmon is still known as a wild fruit, with a somewhat dubious reputation. A taste for it among the coloured people of the South is almost proverbial, and white folks have seemed sometimes to feel as though this put it rather beneath their notice; still, there are many refined persons whose taste for fruits is above suspicion, and who do not scruple to relish openly their basket of ripe Persimmons. The native Persimmon is, in fact, a luscious fruit when at its prime, and it is a matter of great regret that more persons of good manners do not have the opportunity to cultivate its acquaintance. The supply of wild fruit is limited and uncertain, so that it has not found a firm footing in the market. Fruit-buyers seldom ask for it, and shippers seldom consign it to the city commission men. Attention has been called several times of late to this fruit, however, as a profitable fruit for cultivation, and in a few instances small orchards have been set. The Japanese Persimmon, or Kaki, is also becoming more common in America, and is somewhat frequently planted in the Southern States. It is occasionally seen in the markets, but not often enough to make any real impression. In a recent study of the varieties now propagated in this country, Professor Watts of Tennessee enumerates ten named sorts of American Persimmons, and seven of the Kaki.

THE VELVET BEAN.

Some time ago the Editor of the *Gardeners' Chronicle* wrote asking me about the Velvet-Bean in this country. I have just received a pamphlet from Mr. J. F. Duggar, detailing his experiments with the Velvet Bean in Alabama. This plant (which he calls Mucuna utilis), was found to be a useful species in nitrogen collecting and soil-improvement. When tried beside the Cowpea, one of the mainstays of southern agriculture, it gave practically equal results. When Sorghum followed Cowpeas in the rotation, there was an increase of 3216 lb. in the cured hay, as compared with a total of 3792 lb. of cured hay from plots unfertilised by the growth of Cowpeas. On plots where Sorghum followed the Velvet Beans, the increase was 3272 lb. of cured Sorghum-hay. Still more remarkable results were secured when Oats followed the Velvet Beans. The bines and foliage also make excellent hay. The plant does not seem to thrive except in the extreme southern States.

LANDSCAPE GARDENING BOOKS.

There seems to be quite a little competition in sight for the sale of books on landscape gardening. There are two new ones on the market, and more coming, they say. The two already published are by Professor S. T. Maynard, of the Massachusetts Agricultural College, and by Mr. Samuel Parsons, junr., ex-Superintendent of Parks for New York City. Both are small, handy volumes, of a popular nature, intended for the small purses of home planters. Professer Maynard calls his, *Landscape Gardening as applied to Home Decoration*; and Mr. Parsons chooses the title, *How to Plan the Home Grounds*. It will be seen that the field proposed by these two authors is nearly identical. The treatment is sufficiently diverse, however, to remedy any difficulty that might arise over duplication of subjects. The two books are as unlike as though one were stoichometry and the other philately. Professor Maynard's book abounds in practical advice. Practical advice is usually the most useless kind of stuff in a book, but in this case it does not seem so to me. The directions here given for doing this and that, and for caring for this or that plant, seem to be really useful and appropriate. This feature of the book is its strong point. Mr. Parsons' book is more readable and entertaining, and will appeal more to persons of another taste. Both books do credit to good publishers, and are very acceptable additions to our horticultural libraries. In this country, we have had several good books on landscape gardening in recent years; and there seems to be some justification for the belief that public and private taste is improving along these lines. These books are, doubtless, at once the sign and the cause of some of the improvement. *F. A. Waugh.*

CULTURAL MEMORANDA.

STATICE LATIFOLIA.

This species, known in the vernacular under the name Sea Lavender, is the prettiest of the hardy species of Statice. The plant produces numerous flower-stems, 1½ foot high, that are well above the foliage, and bear purplish-blue flowers. The colour of the flower is retained by them for several months after being cut from the plant, provided they have just become fully expanded at the time. The flowers, if intended to be preserved, should be hung in an airy room till quite dry. For intermixing with other flowers of like nature in winter-vases the flowers are invaluable. Afforded an open position, and a rich loamy soil, Statice latifolia thrives admirably. If the soil of the garden is not exactly suited to its requirements, it may be made suitable at a small cost of labour or materials. The plant is deserving of cultivation; for, apart from the usefulness of the flower-spikes in a dried state, it affords a pleasing contrast to other herbaceous perennials.

A fortnightly application of slightly-salted water in the summer favours growth. One ounce to 5 gallons of rain-water will suffice, or a small quantity may be added to farmyard manure-water. *H. T. M.*

IRELAND.

THE ROYAL HORTICULTURAL SOCIETY OF IRELAND ROSE SHOW.

The summer show of the above Society will be held in Merrion Square on Thursday, June 29, and promises to be a great success. Their Excellencies the Lord-Lieutenant and Countess Cadogan have accepted the invitation of the Council to visit the show. Of the many choice prizes offered for competition, the following are the chief ones:—For a stand of thirty-six Roses, Messrs. Dickson & Son, Newtownards, have given a Silver-plate, value £25; E. Johnson, Ltd. (Dublin), for a stand of Roses, seventy-two blooms, thirty-six varieties, open to nurserymen only, a Silver Cup, value £5; Messrs. Hartland, Cork, a Challenge Cup, value £6, for a stand of Begonias; Major Domvile, J.P., a Silver Cup, value £5, for a stand of herbaceous plants; a Silver Plate, value £10, for a stand of Carnations or Picotees, twenty-four bunches; and Mr. Watson, Clontarf, a Silver Cup, value £5, for a stand of Carnations, twelve bunches; Messrs. Kelway & Sons, Langport, Somersetshire, a Silver-gilt Medal, for a collection of cut flowers. There are forty-five competitive classes in all, and the Society give three money-prizes in each class. Intending exhibitors should remember that all entry-forms must be lodged with the Secretary (W. H. Hillyard, Esq.) by the morning of the 23rd inst.

Dublin Naturalist Field Club.

The members of the above society took their second excursion to Ireland's Eye on May 27, under the direction of H. K. G. Cuthbert, Esq., honorary treasurer. The excursion was attended by twenty-eight members and their friends, and they left Amiens Street by the 1.55 P.M. train for Howth; and on arrival at Howth they embarked in boats at the west pier, and reached the island in about half an hour, one of the boats being retained for dredging purposes. The majority of the members followed their inclinations, which were botanical.

Dublin Weather.

The summer weather we are enjoying will bring gladness to the hearts of our gardeners and farmers, after the heavy rainfall we had about the middle of May, which well saturated the ground. The gardens and pastures were, a fortnight ago, bare of verdure, but they are now covered with Nature's richest raiment.

The expectations of fruit cultivators are likely to be realised in good crops of most kinds of hardy fruits, and as a consequence the trade in baskets, &c., is very lively.

Flowering plants in the public parks are backward, and we must wait some time longer ere we see the usual floral display in beds and borders.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Odontoglossum citrosmum.—The flowering season of this fragrant Orchid extends from the end of April to June. As each plant passes out of bloom it should be examined, and if needing fresh compost, this should be afforded, as root action will commence at once. This species thrives best when grown in baskets or well-perforated pans, either of which should be suspended. Each receptacle must be efficiently drained, and a small quantity of peat and sphagnum-moss may be used around the base. The plant will require a light and airy position, in a house where, ordinarily, an intermediate temperature is maintained, and though they require an abundance of water during the growing season, no fresh supply must be given until the compost has dried considerably.

O. grande and others of this section have little in common with the above species. Having rested since last season's growth was completed, each plant should now be given fresh rooting-compost; but before supplying them with new peat and freshly-picked sphagnum-moss, all of the old material should be carefully removed. Plants in pots may be placed in an intermediate house, where they will enjoy a moderate amount of light. O. Insleayi is liable to be injured during winter when the plants are resting if the compost be saturated too frequently. When affording water to these plants during the early stages of growth, it is well to prevent any from lodging on the leaves.

Trichosma suavis is rarely seen in good condition, because the plants are grown in greater heat than necessary. It is a cool-growing plant from the Kashya mountains, and of sufficient merit to be included in all collections. The partially-developed pseudo-bulbs are now emitting new roots, and if repotting or re-surfacing be required, it should be done. Fill the pots to within 1½ inch of the rim with drainage material, working in amongst the roots a compost of equal parts of peat, fibrous loam, and sphagnum-moss, with a dash of silver-sand. The plants may be placed with the Masdevallias, and water given them but sparingly until they are thoroughly re-established. They should be kept moderately dry during the winter months.

Ada aurantiaca.—This desirable Orchid thrives best in a position at the warm end of the cool Odontoglossum-house, and treated in most respects like those species. Having now flowered from the partially-developed growths, root-action will commence, and any attention the plants require should be given them without delay. The roots do not often become attached to the sides of the pot, and any plants, therefore, that require larger receptacles may be turned out like ordinary plants, and some of the old soil removed. In repotting the plants, use a quantity of crocks, but little compost. The more compost afforded, the greater must be the care exercised in the matter of affording water.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

The Late Vinery.—The Vines will now be fast coming into flower, and the varieties Lady Downes' Seedling and Alnwick Seedling, which are not free setters, should be specially treated so as to aid pollination, either by syringing the Vines once a day while they are in flower, or using a large camel-hair brush, or a few feathers charged with pollen obtained from flowers of Black Alicante or Black Hamburgh. The temperature of the vinery should be well kept up at this time, and atmospheric moisture lessened in amount somewhat, and the borders should be afforded water; but this matter should be attended to just prior to the flowering of the Vines. With Gros Colman and Black Alicante it is sufficient to shake the rods about noon in order to set the flower.

The Muscat Vinery.—The Vines, if started in February or at an earlier date, will now have reached the first stage of colouring, a time when they are apt to scald from sun-heat, or when exposed suddenly to bright sunshine. Care must be taken in removing lateral growth not to remove any foliage that affords overhead shade; later, when colouring is well advanced, more sunlight will be helpful in attaining that rich golden tint so generally admired in Muscats. Muscat Grapes, however, will perfect their colour under the shade of the foliage, without any special aid, when they are permitted to advance steadily, and to remain on the Vine till they are ripe. Exposure of the bunches need only be done to suit any special circumstances, and it may be said here that colour obtained in that manner does not endure, neither does the fruit keep, but it soon shrivels. Muscats generally possess leafage that is less robust than that of other Vines, and bunches on laterals at the usual distance apart obtain sufficient light. The ventilation if increased in volume at this stage will be of much assistance, though, unlike black Grapes, they do not benefit to the same extent from the sashes being opened at night. Six A.M. is not too early to begin to air this vinery if it be in a southerly aspect, or as soon as the earliest sun-ray touches it on other aspects, increasing the amount of air as the warmth increases. If the foliage or the berries are apt to scald in any vinery, a slight coat of shading should be applied to the roof-glass with a syringe, or a fish-net doubled should be drawn over it. In all bunches of Grapes except the latest Muscats it is easy to be seen at this date which of the berries are stoneless, and as these disfigure the bunches by their small size, they should be removed. The size and perfection of the berries will, of course, be governed by the condition of the Vines, of the border, and their treatment from the time of starting; but much may yet be done with healthy Vines in obtaining berries of the largest size. The supply of water should be increased if this is desired, accompanied by frequent dressings of artificial Vine-manure, or liquid-manure diluted in accordance with its strength. With a continuance of the present heat, the floors and other surfaces must be moistened often.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Winter Crops.—During the present month the bulk of the late autumn and winter crops of Brassicas will have to be planted. A beginning should be made with those that turn in early, planting these by themselves so that whole quarters may be cleared at one time of the remains of the crops, and put to other uses. The mid-winter and late crops should be similarly treated. Taking Cauliflowers first, there are those of the Dwarf Erfurt type, following on with Walcheren, and others, and finally setting out Autumn Giant. Next come the early Broccolis, viz., Snow's Winter White, Self-protecting Spring White, and the many mid-season varieties, finishing with Model, Ledsham, and Late Queen.

Cabbage.—The present month sow a small quantity of seed of the small-hearting Cabbages for planting on any vacant plots, viz., Little Pixie, London Coleworts, Ellam's Early. The small-growing varieties may be planted at from 12 to 16 inches apart, on land that has been lightly forked over, or merely hoed deeply, drawing drills as for Peas, and planting therein.

Celery.—In dull weather, put Celery, when large enough, into trenches, and afford it plenty of water. If the trenches are dry at the time of planting, let water be afforded, and also afford water to the nurse-beds before lifting the plants. If plenty of manure was put on the trenches, it will suffice to apply only clean water. See that the plants do not get drawn before they are put into the trenches. During the month the successional batches should be planted from the nurse-beds.

Broad Beans.—The earliest plants being now in bloom and pod, should be topped, thus the black-fly that usually infests them will be get rid of, if the tops are put into a water-can, and scalded, and early podding induced. Keep the hoe at work among growing crops of Beans.

Tripoli Onions.—If the bulbs are going to seed, remove the flower-spikes forthwith, and slightly depress the tops. If very large bulbs are required, afford 1 foot space between the bulbs, and afford the beds a good dressing of guano or other suitable manure, and a copious application of water, being careful not to allow any manure to dry on the tops, or much harm may be occasioned. Remove bulbs which show signs of decay, removing them right away. Soot forms a good dressing for Onions, and may be used three or four times in the season. Keep the hoe in constant use.

Vegetable-Marrows. — Those which have been forwarded under glass should not lack water at the roots, nor be allowed to get crowded with weak, useless growths, nor the fruits to remain on the plants after they have become fit for table. The first lot of fruit sometimes turns yellow and drops off, more especially if the plants possess great vigour, the result of a very rich soil. A sandy, loamy soil, with not much manure, prevents this to a great extent; and later, when the roots get down to the manure of the hot-bed, heavy crops of fruit may generally be expected.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Richardia (*Calla*) *africana.*—Where the practice of planting-out Richardias is adopted, the required preparation of the land should now be made. Trenches about 1 foot in width and half-a-spit deep should be thrown out, and a layer of rich manure dug into and incorporated with the soil in the bottom of the trenches. The plants should be divided if a potful contains more than one, and be planted about one foot apart along the middle of the trenches. The balls should be made as small as possible, in order that they may come into pots of the same size as those they were taken from. It is a good practice to remove all of the small suckers before planting the roots, and setting these out in land apart if an increase of plants is needed. Another, and a very satisfactory method, is to lay the plants on their sides on the ground in the open air during the summer, and entirely withhold water from the soil. The foliage then dies down, and the plants remain dormant till about the end of the month of August, when signs of renewal of growth will appear. The plants should then be turned out of their pots, the old soil shaken from the roots, and these potted singly in a compost consisting of three parts loam and one part rotten hotbed manure; the small tubers being removed, and placed to the number of four in a 6-inch pot if stock is required. The plants should be firmly potted, ample space being left for holding water; stand them in common frames, and keep close for a week or ten days.

Bouvardias.—The older plants may be transferred to cold pits or frames at this season, gradually increasing the amount of air afforded, and after a week let full exposure take place in the daytime during fine weather. A syringing in the morning and evening will keep down red-spider, which is otherwise apt to be troublesome. Young plants raised in the early spring-time should be cultivated in an intermediate temperature, affording them a shift into larger pots whenever this is necessary. Pots of 5 or 6 inches in diameter will be sufficiently large in which to flower these young plants.

Herbaceous Calceolarias.—A pinch of seed may be sown now. To raise Calceolarias with success, let a few 4½-inch pots be filled with finely-sifted loam three parts, leaf-soil one part, and some silver-sand, having put in an inch of finely-broken crocks; after making the surface even, saturate the soil by immersing the pots almost to the rim in water. After allowing the water to drain away, sow the seeds evenly and thinly, but do not cover them with soil; a sprinkling of sand, however, is allowable. A sheet of glass or paper should be laid over the pots, which should be placed near the glass in a frame or hand-light on the north side of a wall, or some other coolish and moist place, where the sun will not reach them. Care is needed in affording water, and until the seedlings have taken a firm hold of the earth it is prudent to dip the pots to the rim in water.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Cannas.—Twenty years ago Cannas were grown chiefly as subtropical plants, to be admired for their fine foliage; but, thanks to M. Crozy and other French hybridists, we have now both fine foliage and showy flowers combined, the habit, too, being also rendered sturdier and dwarfer. Not only will Cannas grow in full sunshine, but they are successfully grown in partial shade. They are easy to cultivate providing the soil is light and rich; and when throwing up the flower-spikes, manure-water is liberally afforded. Although they form neat beds of themselves, they are more effective when mixed with Tobacco and Castor-oil plants, at a distance of 1 yard apart, with a ground-work of Melianthus major, or Centaurea gymnocarpa; and where the dark bronze-foliaged varieties are planted, Gazania splendens, or the dwarf Evening Primrose (Œnothera macrocarpa), make a pleasing contrast.

Asters.—The German and French Asters alike form fine masses of colour in borders or in beds. At Westonbirt we plant them in beds of 4 feet wide in the reserve-garden, the beds being dressed with rich, fresh loam, and after digging, making the soil firm. The plants under this kind of treatment grow sturdily, and an occasional application of weak liquid-manure is afforded till flowering-time. When planting Asters, let each be lifted so as not to break the fibrous-roots, and plant at a distance of 15 inches apart. The Pæony-flowered varieties are very noble-looking, and the Victoria strain, with double and imbricated flowers, form pyramids of blooms. The flowers of the Chrysanthemum-flowered Comet Aster resemble a Japanese Chrysanthemum, the petals long, and recurving from the centre to the outer petals. The shape is semi-globular. This variety requires a little more root-feeding than most varieties, and they are taller in growth, while the dwarf Chrysanthemum-flowered Asters bloom much later, and look well when used as edgings to beds of other species of plants.

Sweet Peas.—The latest sowing may now be made. The plants from early sowings, when they have reached a height of 4 inches, should have sticks placed to them, but leaving the lines of sticks open at the top. Afford occasionally mild soot-water; it gives strength to the growth, and increases floriferousness.

Roses.—Now is the time to remove all weakly growths from Tea and Hybrid Perpetual varieties. Briars that were budded last year as standards should not be allowed to flower, but be pinched back to three or four buds, which soon starting to grow, will form finer heads this season. The shoots of Briars planted during the past winter should be thinned to two or three, and these as near together as possible, and according to the height of the stem required. Where Roses are subject to mildew, the parasite may be prevented and removed by using anti-blight mildew powder, distributed by means of the Malbee bellows.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Grape-vines.—The present is a suitable time for planting varieties of the Grape-vine in south and other warm aspects against walls. The plants should have been prepared for the purpose last year, being by preference strong cut-backs, grown in pots, and they should have made a little new growth. Assuming that stations have been formed for their reception, let the plants be turned out of the pots, shake a portion of the soil from the roots, liberating some of these, and lay the roots out horizontally, and radiating round the stem. Then work the finer particles of soil about these, fill the hole, and tread it firmly all over, applying a mulch of partially-rotten manure. The common Sweetwater and its variety, the Parsley-leaved, are desirable for out-of-door fruiting. When the bunches and berries are duly thinned, and other necessary attention afforded, these rarely fail to ripen perfectly in the southern counties in ordinary summers.

Strawberries.—The remarkable increase of warmth during the past few days will greatly hasten the ripening of outdoor Strawberries, and by the time this appears some of the earliest fruits will be ripe. In most gardens, the fruits have to be protected by fish-netting laid over the beds or lines as soon as the fruits commence to colour. Where Strawberries are grown near to a wall, short wooden stakes may be driven into the soil along the front, with about 4 feet out of the ground, and at a distance of about 8 or 10 feet apart. On the top of these a thin batten may be nailed lengthwise of the border, and the netting be suspended from the top of the wall and over this trellis to the front of the border, pegging it down to the ground, or to boards set on edge, which is better. Where large quarters are covered with netting, a framework should be erected high enough to carry it to allow of a person to pass easily under it when gathering the fruits. Mice sometimes nibble the fruits, or bite through the stalks and collect the fruit into heaps; and when this is the case, numerous baited traps should be set for them forthwith.

Peach and Nectarine Trees. — The final disbudding should be finished soon, all gross shoots pinched back to a basal lateral, and blistered leaves removed and burnt. Then comes the thinning of the fruit, which, I fear, in many cases will not be needed—at least, not to any great extent. At Dropmore, most of the trees carry more fruits than should remain, and as a beginning all clusters have been reduced to one fruit each, and all badly-placed, undersized ones removed. The early-ripening varieties, Waterloo, Alexander, and Amsden June, have set their fruit thickly this season, and these have already been thinned. If a heavy application of water be made to the border, the size of these early fruits will be increased, for notwithstanding the many showers that fell last month, the borders that skirt the garden-walls still require much moisture. If not already mulched, the border for a width of 4 feet measured from the wall should be covered with a 2-inch layer of half-rotten stable-manure. Water may be applied before and after this is put on the border. The trees should be syringed with clean water daily at 6 or 7 A.M.

THE APIARY.

By Expert.

Hiving Swarms. — Hiving swarms is a very simple matter, unless the bees happen to cluster in awkward places. When this occurs, the bee-keeper must exercise his judgment in adapting his procedure to the circumstances. Usually, however, there is no need for the troublesome precautions sometimes recommended. With a frame hive, ready for introducing the swarms into, it needs but to get the swarm into a skep by holding it underneath and shaking the bees from the bough on which they are clustered into it, carry them to the frame-hive and throw the swarm on to the platform, or by some similar means of running bees in, according to the form of frame-hive used. If they settle too low down to allow of the skep being held beneath, spread a cloth under the swarm, and on it fix the skep with the edge raised up, shake the bees on to the cloth, and they will soon run in. The only precaution we advise, is that beginners defer introducing swarms to frame-hives till after sundown. It is advantageous to feed all newly-hived swarms with thin syrup for a day or two, and to continue it whenever the weather happens to be wet or cold. Second swarms require particular attention by way of keeping them warm and cosy. They must not be allowed to occupy more than four or five frames, to be increased to six or seven before the end of August, and when this number is fully worked out, the bees will winter on them nicely. It also greatly facilitates comb-building — when the bees are not very numerous—if the entrances are kept narrow, and a board is firmly weighted down over the quilts, provision being made for feeding regularly. Where comb-foundation is given in full sheets to swarms, fix it very firmly on the top bars, or it may break down when subject to the great heat of a newly-hived swarm. It is safer to alternate the foundation with frames of ready-built combs, and at the same time allow a little ventilation at the top for a day or so after hiving where full sheets of foundation are used.

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Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	June 10—	Royal Botanic Society, Meeting.
TUESDAY,	June 13	Royal Horticultural Society's Committees. National Rose Society, Committee Meeting. Royal Horticultural Society of Ireland, Meeting. Cambridge Horticultural Society, Exhibition.
WEDNESDAY,	June 14	Grand Yorkshire Exhibition and Gala at York (3 days). Royal Cornwall Agricultural Show at Launceston (2 days).
THURSDAY,	June 15—	Linnean Society, Meeting.
FRIDAY,	June 16—	Royal Botanic Society, Lecture.

SALES.

WEDNESDAY,	June 14	1000 Begonias, Greenhouse Plants, Dahlias, Japanese Lilies, &c., at Protheroe & Morris' Rooms.
FRIDAY,	June 16	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period May 28 to June 3, 1899. Height above sea-level 24 feet.

1899. May 28 to June 3.	Direction of Wind.	Temperature of the Air.				Rainfall.	Temperature of the Soil at 9 A.M.			Lowest Temperature on Grass.
		At 9 A.M.		Day.	Night.					
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.		At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 28	N.N.E.	50·5	45·3	60·0	37·1	..	51·2	52·8	51·9	28·9
Mon. 29	N.N.E.	53·5	51·9	63·9	35·8	...	53·1	52·9	51·9	26·5
Tues. 30	S.E.	57·9	51·8	68·1	36·6	...	55·5	53·6	51·9	29·4
Wed. 31	S.S.W.	61·5	52·6	71·9	39·4	...	56·9	54·5	51·9	32·9
Thu. 1	S.E.	70·1	58·0	76·9	46·4	...	59·2	55·5	52·1	37·8
Fri. 2	S.S.W.	74·2	60·2	80·5	54·6	...	61·6	56·5	52·2	45·0
Sat. 3	N.N.E.	61·5	53·1	75·1	50·9	...	62·3	57·7	52·6	40·6
Means...	...	61·3	53·3	70·9	43·0	Tot. ...	57·1	54·8	52·1	34·4

Remarks.—The weather during the week has been warm and dry.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—60°·6.

Actual Temperatures:—

London.—*June* 7 (12 P.M.): Max. 80°; Min. 54°.

Provinces.—*June* 7 (6 P.M.): Max. 69°, South Counties; Min. 49°, Shetland.

Fine; hot; cooler; no rain.

Paris International Exhibition.

We have received through the courtesy of the Director of the Royal Gardens, Kew, a series of documents relating to the Horticultural Department of the Great Exhibition in Paris in 1900, and containing the general arrangements for the permanent and temporary exhibitions. The documents in question occupy some 136 pages, from which we can only condense a few leading particulars. We may say, however, that the schedules are framed with that clearness, accuracy of statement, and orderly arrangement, which are characteristic of French official papers.

The permanent exhibits comprise instruments, machines, structures, tools, garden-decorations, plans, books, greenhouses, fruit and other trees permanently planted out, &c. Applications for space may be made up to June 15, 1899.

Fruit-trees and ornamental trees intended for permanent exhibition should be planted in the course of 1899, or at latest before March 15, 1900.

Temporary exhibitions will be held on the following dates in 1900:—April 17, May 8, May 22, June 12, June 26, July 17, August 7, August 21, September 11, September 25, October 9, and October 23.

At these exhibitions collections from amateurs, nurserymen, and public bodies will be received according to the terms of the schedule for each particular date.

Among the regulations we find a distinction drawn between "lots" and "collections." The lots may contain numerous specimens of the same species or variety; but in "collections" only one specimen of the same species or variety can be shown.

Foreign exhibitors desirous of taking part in these temporary exhibitions, should make application through their Commissioner at least six weeks before the allotted date, and they will receive notice at least three weeks previously of their admission to the Exhibition.

It is obvious that such a regulation, if strictly enforced, would shut out many important exhibits. It will not be possible in all cases to say six weeks, or even three weeks beforehand, that a particular plant will be fit for exhibition. To meet such cases, there are various "*concours imprévus*" on each occasion, and these unforeseen contingencies or competitions may, and very likely will, prove the most important elements of the temporary exhibitions.

Turning to details, we find that Class 43 is intended to comprise garden structures, tools, implements, herbaria, books, &c. The temporary exhibits in this class comprise pumps on June 12; lawn-mowers on August 7; spraying apparatus on August 21, and heating-apparatus on September 25.

Class 44 is devoted to kitchen-garden plants. At each of the meetings above enumerated, exhibitions of vegetables according to the season will be shown.

Class 45 is devoted to fruit-trees and fruits. The permanent exhibition consists of trees and shrubs grown out-of-doors.

Temporary exhibitions will be held on the dates already specified, from April 17 to October 23, both inclusive.

Class 46 includes trees, shrubs, ornamental plants, and flowers. The permanent exhibition will consist of ornamental and of forest trees and shrubs, including Roses. The temporary exhibits are devoted to plants and flowers of various kinds, according to the season, on each of the allotted dates, competitions for new plants being held on each of the dates.

Class 47 is concerned exclusively with stove plants. In this division, there will be no permanent exhibition; but at the various temporary exhibitions, new plants, plants according to season, and plants remarkable for good cultivation will be represented.

Class 48 takes cognisance of seeds and seedling plants. The permanent collections will consist of seeds of various kinds, and of nursery stock and lawns. Temporary exhibitions will be held on April 17, May 22, and October 9.

We trust that as the facilities offered by our French friends are great, our nurserymen will cordially respond to the appeal made to them. Of one thing we may be sure, that if on certain points of detail we are surpassed by our continental rivals, and if we have something to learn from them, yet British horticulture in the main will be well able to hold its own.

Points about the Temple Show.

When writing or speaking about what there was, and what there was not exhibited at the Temple Show last week, it is worth remark that not one group of Codiæums (Crotons) was there. This is the more remarkable, because there is scarcely a garden in the country that has a hot-house, where some of these plants may not be seen. A collection of the best varieties to date might have been anticipated, therefore, at the Temple Show, especially as there are season after season very large exhibits of Caladiums, equally beautiful plants, but more tender and less suitable for the inevitable present-day furnishing business than are Crotons. Indeed, apart from the Caladiums, indoor foliage-plants generally are not given a conspicuous position at these shows. Messrs. Wills & Segar, Mr. Iceton, Messrs. Fisher, Son & Sibray, and one or two other exhibitors, had groups in which were specimens of several species of ornamental foliage-plants, most of them small, but in none of them was it attempted to display a representative collection of one species.

To change the general effect to be seen at the Temple Show from year to year, as seems so desirable, is not an easy matter. The simplest method would be to change the date of the exhibition. By so doing a different lot of plants altogether could be got into bloom; but the usual date is, we expect, not capable of alteration, and is necessary to the degree of success the event has attained.

Another means would be to compile a schedule each year, purposely omitting certain plants that formed an important feature at the preceding show, and thus providing space for new exhibits. But this could only be done to a limited extent. Who, for instance, would think of excluding from a Temple Show, even for one year, the displays of Orchids, Roses, or Begonias? Yet it is just such exhibits as these that make succeeding shows in a measure repetitions of former ones. In another column a correspondent draws attention to the fact that Pelargoniums were scarcely represented at the recent show, but we should imagine that had space been asked for an exhibit of these, it would have been provided by some means or other, and that the omission is on the part of the exhibitor.

The authorities would not give space for duplicate exhibits of a plant to the exclusion of other important species not represented. It is sometimes argued that the general effect of the show might be altered if the exhibitors would but arrange their collections in a different style. It should be remembered that the space given for most exhibits is quite insufficient for this, even were exhibitors inclined to take additional trouble to make novel arrangements.

The only alteration worth mention that could be done by mere arrangement must be done by the Society itself, and by giving to each exhibitor a site as widely different as possible to that he had in the previous

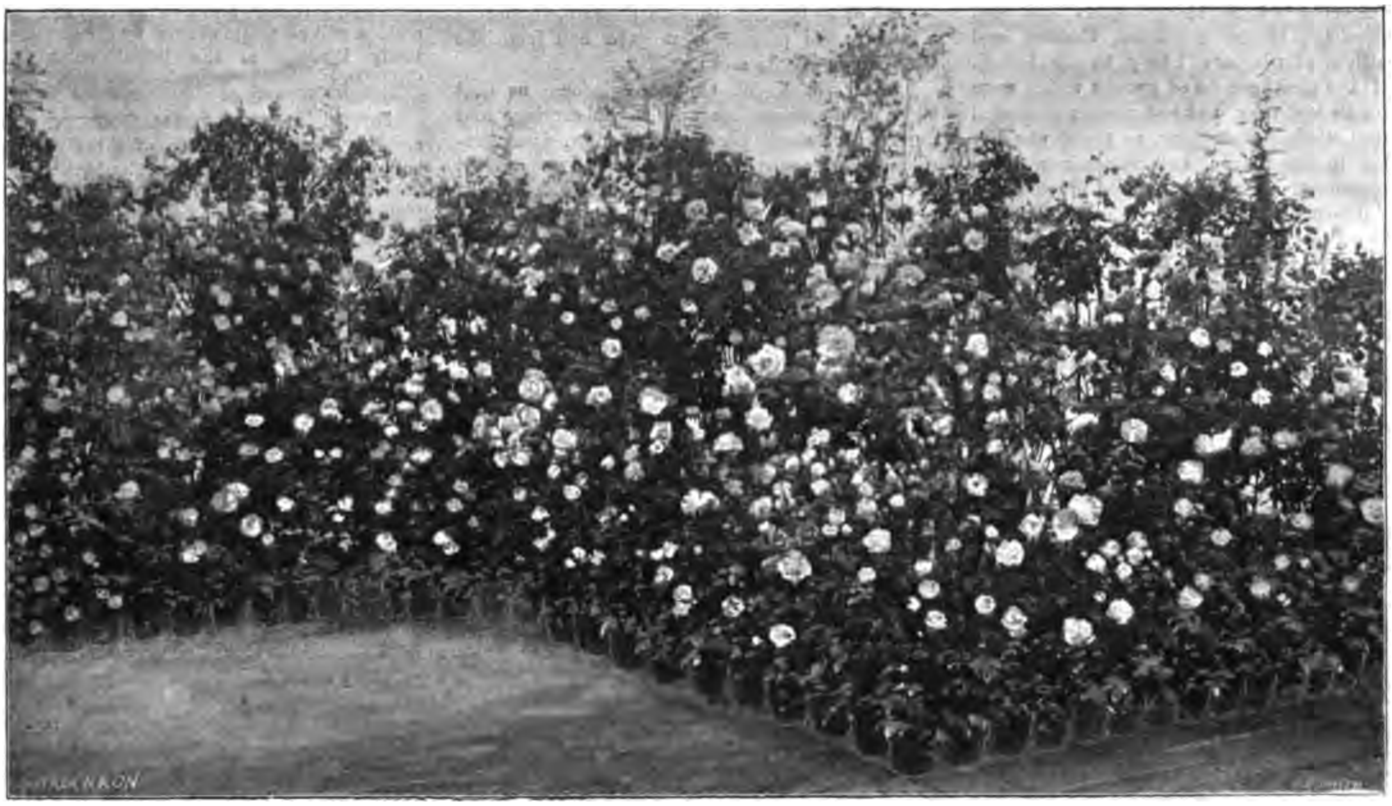


FIG. 134.—GROUP OF ROSES.
(Exhibited by Messrs. Paul & Son, of the Old Nurseries, Cheshunt, at the Temple Show.

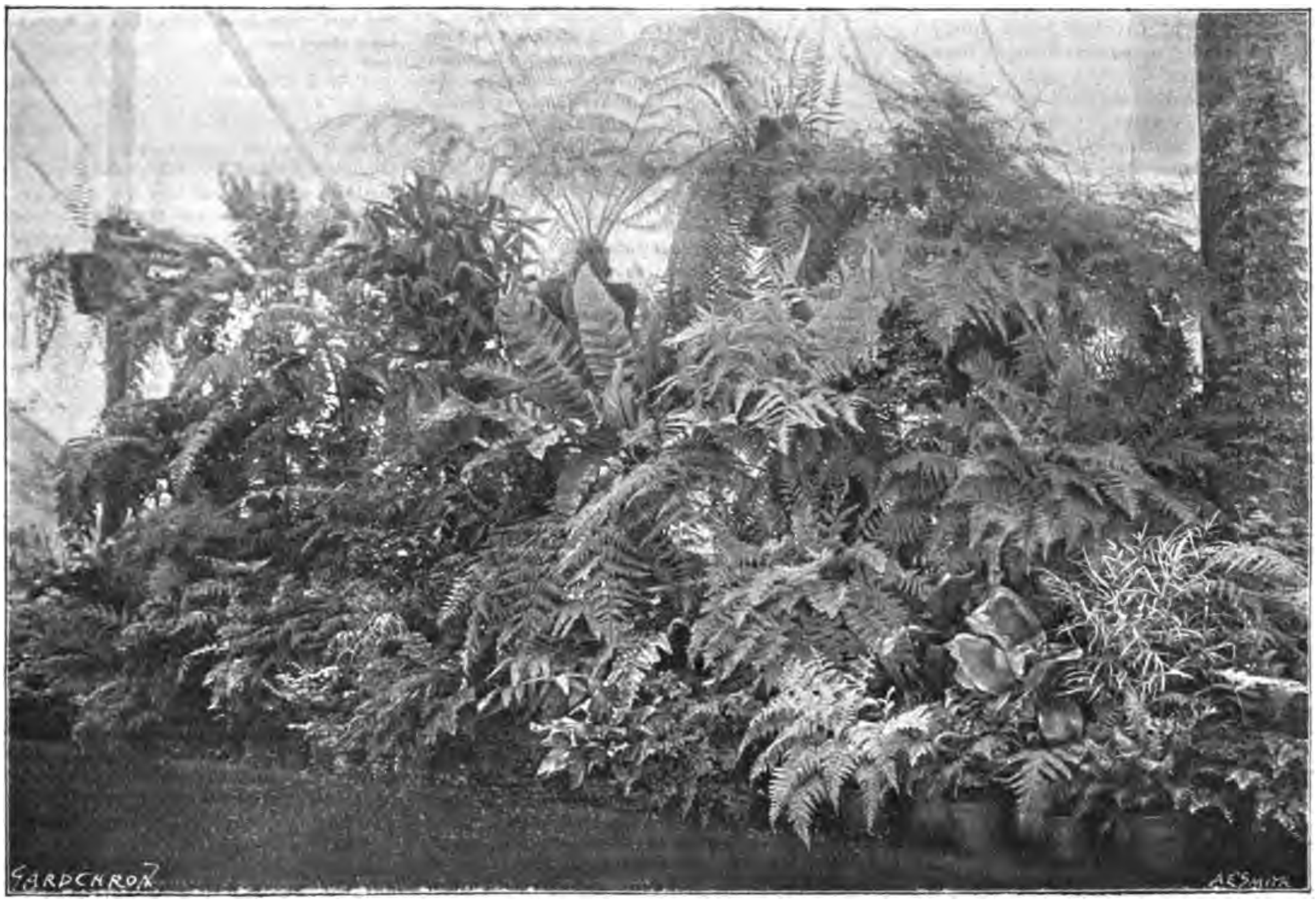


FIG. 135.—GROUP OF FERNS.
Exhibited by Messrs. J. Hill & Son, at the Temple Show.

year. Instead of this, we know before entering the tents where the Orchids will be, and where the Roses, Begonias, Cannas, and many other plants are likely to be found. Some of the photographs of groups which were taken for us last year, but not used, might well have been utilised this year, so slight was the difference in the plants, and in their method of arrangement. There might be much more variety obtained in this direction.

In regard to the financial aspect of the show, the council, since it abandoned the strict measures taken four or five years ago, when the tickets of fellows and exhibitors were punched upon entering, has not given the least opportunity for complaint on this score. But several cases that came to our knowledge at the recent show seem to indicate that some of the Fellows are too exacting in their demands on the Society. A Fellow's transferable ticket may be passed to a friend or a friend's friend perhaps, but it was surely not intended that such a ticket should admit a person to the grounds before the previous one that used the same ticket has left them. That this was done in some instances is matter of common knowledge, and is highly discreditable.

From the official catalogue, it appears there were about ninety exhibitors on the last occasion, but many of these showed several collections of plants. H.R.H. the PRINCE OF WALES visited the exhibition on the second day. In our present issue we give several additional illustrations which neither time nor space permitted us to give last week. No further explanation of them beyond reference to our report last week is necessary.

Garden Products by Rail. NATURALLY this subject is at present exciting much interest among consumers living in towns. To Londoners, especially, the system inaugurated by the Great Eastern Railway Company in 1895 is of much value. Considerable success has attended the action of this company, as the undermentioned figures show. Packages conveyed in December, 1895, 1,378 (one month); in the following year ending December, 60,034; in 1897, 112,104; 1898 showed 135,860. The company forwards from every station on their system to London, and stations in the eastern suburbs, at a reduced charge of 4*d.* for 20 lb., one penny additional for every 5 lb. or part thereof up to 60 lb., including delivery within the usual limits (about a three-mile radius from Charing Cross), and special arrangements have been made with Messrs. CARTER, PATERSON & Co. for delivery in suburban districts beyond these limits. These rates will only apply subject to the following conditions: produce to be packed in boxes on sale at the different stations, or similar ones; boxes to be secured only by nails; the produce to be conveyed at owner's risk, and carriage prepaid—prepayment by parcel-stamps, to be had at the stations. No box to be of a greater weight than 60 lb. A pamphlet, to be had from the Company's agents, affords a long list of farmers and others who are prepared to send produce by passenger-train, and this will be found of great value to intending customers.

The G. N. Railway Company forward small parcels from about 170 stations on their system to London and other cities at the following educed charges, irrespective of distance: up to 20 lb. (inclusive) 6*d.* per package; over 20 lb., up to and including 30 lb., 8*d.*; 30 to 40 lb., 10*d.*; 40 to 50 lb., 1*s.*; 50 to 60 lb., 1*s.* 2*d.* These rates apply to every description of package that will admit of other packages being placed upon it. All other particulars, including a long list of producers, may be had from the Company's agents and stations.

The L. & N.-W. Company inform us that their arrangement for this year's carriage and delivery of small parcels of garden, farm-produce, &c., are practically the same as last year, and that the minimum charge has been reduced from 6*d.* to 4*d.* per consignment. The "owner's" risk scale of rates, and directory of producers willing to supply produce, &c., may be obtained from the Company's agents, and will be found of much use.

The Midland Ry. Company's Superintendent will also supply information on this matter. The railway officials state that at present they do not contemplate the making of new arrangements respecting the carriage of garden and farm-produce; but the agents of the Company will furnish every kind of information necessary respecting produce carried by passenger-train.

It appears to us that the various railway companies are warming to the work before them; it certainly seems to indicate the betterment of dividends, and the increased accommodation of consumers resident in cities and towns.

BIRTHDAY HONOURS.—In commemoration of the QUEEN'S birthday, Dr. BURDON SANDERSON, the Regius Professor of Medicine in Oxford, known in the botanical world for his researches on the electrical phenomena observable in plants, has been made a baronet. Prof. MICHAEL FOSTER, who needs no introduction to our readers, is made a K.C.B.; and Mr. JAMES SYKES GAMBLE, the author of the *Manual of Indian Timbers*, and the author of the excellent monograph of the *Bamboos of British India*, has been selected as a Companion of the Order of the Indian Empire. There are so many "orders" nowadays that it seems a pity that some of them are not consolidated into an Order of Merit, with appropriate departments. As things are at present, it is, to say the least, incongruous to give the same "honour" to a city magnate, a political opportunist, or a man of many acres and much cash, as to a member of the services, a judge, or a distinguished man of science.

THE BRITISH ASSOCIATION AT DOVER.—In connection with the forthcoming visit of the British Association to Dover, for their annual Congress, the hospitality and entertainment committees have, in connection with the officials of the Association, arranged a very comprehensive and diversified programme. The gathering will commence on Wednesday, September 13, when the President, Sir MICHAEL FOSTER, K.C.B., will deliver his address. On Thursday, the members will be invited by the General commanding the district to a garden-party at Dover Castle; and in the evening, the Mayor will entertain the Association at a banquet. On Friday, there will be a smoking concert in honour of the President at the Town Hall. On Saturday, the French Society of Science will visit Dover, and there will be a combined excursion to Canterbury; and on Sunday, there will be special services, military bands will play in the Connaught Park, Dover, and there will be organ recitals at Canterbury Cathedral and Dover College Chapel. For Monday, a garden party in the College grounds has been arranged, and a military tattoo by the bands of Dover garrison in the evening on the sea-front. On Tuesday, there will be an afternoon party to the Warren, the picturesque undercliff between Dover and Folkestone, locally known as Little Switzerland; and in the evening the Mayor will entertain the members at a *conversazione.* On Wednesday, there will be an excursion to Calais, and a ball at the Dover Town Hall; on Thursday, the Association will return the visit of the French Society at Boulogne; and for the five next days, until September 21, the programme includes excursions to Amiens, Antwerp, Brussels, Ghent, and Ostend. The botanical section will be presided over by Sir GEORGE KING, lately Director of the Royal Botanic Garden, Calcutta.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees of this Society will be held on Tuesday, June 13, in the Drill Hall, James Street, Westminster. At 3 o'clock a lecture on "Rock Gardens, Ponds, and Rivulets in Gardens," will be given by Mr. F. W. MEYER.

LINNEAN SOCIETY.—At the evening meeting, which will be held on Thursday, June 15, 1899, at 8 P.M., the following papers will be read:—1. "Contributions to the Natural History of Lake Urmi and its neighbourhood," by Mr. R. T. GUNTHER, M.A.; 2. "A systematic Revision of the genus Najas," by Mr. A. B. RENDLE, M.A., D.Sc., F.L.S.; 3. "On the Anatomy and systematic position of some recent additions to the British Museum collection of Slugs," by Mr. WALTER E. COLLINGE, F.Z.S.; 4. "The Edwardsia stage of Lebrunia, and the formation of the Œsophagus and Gastro-cœlomic Cavity," by Mr. J. E. DUERDEN, A.R.C., Sc.

"MY ROSES, AND HOW I GREW THEM."—By Helen Milman (Mrs. CALDWELL CROFTON), published by JOHN LANE, The Bodley Head, London and New York. At first sight this book seems small, both in size and in quality. It chronicles the horticultural adventures of an amateur, but as these are evidently genuine, and were on the whole successful, the enthusiasm with which they are narrated will awake an answering glow in other non-professional gardeners. Everyone loves Roses, and there seems to be an inexhaustible demand for books on the subject, although the name of these is already legion. The one before us is a simple record of an amateur's work, detailed for the benefit of other novices, and may therefore help and encourage them better than a more ambitious book could do.

"AN ENCYCLOPÆDIA OF GARDENING."—This is a "dictionary of cultivated plants, and an epitome of the culture of all the kinds generally grown in gardens in this country." It is from the practised pen of Mr. T. W. SANDERS, and it is the third edition which now lies before us. Therefore no more need be said to prove it a trustworthy and practical book, excellent for reference as containing much information in a handy form. (Publishers, W. H. and L. COLLINGRIDGE, Aldersgate Street.)

"THE BOYS' OWN PAPER."—In the June part of this popular magazine we note a good article by Mr. W. WATSON, entitled "A Chat about Lilies." To us the dialogue form in which it is written is a little irritating, and suggestive of *Evenings at Home*, and other highly instructive old friends; however, it gives scope for plenty of useful information. As illustration, there is a large coloured plate, by Mr. JOHN ALLEN, and a diagram of it showing thirty-two species of Lilies, so beautiful and gorgeous as to rouse emulation in the heart of every boy-gardener who sees it.

SUCCULENTS.—We understand that the fine collection formed by Mr. COOPER, of Reigate, is for disposal. Mr. COOPER is well remembered as an energetic and judicious collector in South Africa, and contributed not a little to the once famous garden of the late WILSON SAUNDERS.

COMING ROSE SHOWS.—The enclosed fixtures kindly sent us by Mr. E. MAWLEY, are in addition to those published in our issues for April 1, p. 202, and May 6, p. 282:—June 27 (Tuesday), Southampton; July 5 (Wednesday), Hitchin, Redhill (Reigate); 8 (Saturday), Manchester; 11 (Tuesday), Reading; 13 (Thursday), Norwich and Woodbridge; 14 (Friday), Ulverston; 15 (Saturday), New Brighton.

KEW.—"Cyclists will be glad to learn that, by order of the First Commissioner of Works, a large cycle-house for the storage of machines is to be erected at Kew Gardens for the convenience of visitors cycling to that place. There has been a similar house at Hampton Court Palace Gardens for the past two years," says the *Daily News*, "and it is greatly appreciated."

HAMPTON COURT GARDENS.—Those of our readers who may never have seen giant plants of the old Wistaria chinensis in bloom, could not do better than pay an immediate visit to the popular rendezvous of Hampton Court. In numerous localities does this sweetly pretty Chinese climbing plant grow and flower abundantly, but we have never seen such displays as are produced each year in the grounds of this once royal residence. Some of the plants are such veterans that in size and age they are little less remarkable than the famous Vine, but of which a great deal more is heard. Their branches stretch quite as far, and the bark of the principal ones is most interesting. But there is not only one plant, or a dozen. They appear to have been planted in almost every convenient situation, with the result that a visitor during the first fortnight in June, when the plants are literally smothered with pendent racemes of sweetly-scented, peculiarly-tinted blooms, remembers them afterwards as the pleasantest feature of the place; and they overflow even into the village, for one of the hotels there boasts a fine specimen. It is a plant that is worth cultivation in any locality where it can be made to flourish, and in a good soil, when the plant has become established, it is a very quick grower. Sometimes, however, there is considerable delay before much growth is made, and in certain midland counties we have tried to cultivate the species with indifferent success. A few days since, when we went to Hampton, more particularly to again see the Wistarias, the gardeners were busy putting out the summer bedding plants, which, so far as could be seen, were of the usual miscellaneous species. But a remark is well deserved by two large beds filled with varieties of Ranunculus asiaticus. These were almost all that remained of the autumn-planted bulbs, and the gratifying effect of so many beautiful colours was enhanced by the perfect appearance of the beds. Every plant has flowered grandly, and they should be sufficient to persuade gardeners to take a little more care with the Ranunculus, that at one time claimed as much attention from the cultivator as did Tulips. Other floral displays at the moment are those of the Rhododendrons and hardy Azaleas, the former being particularly good.

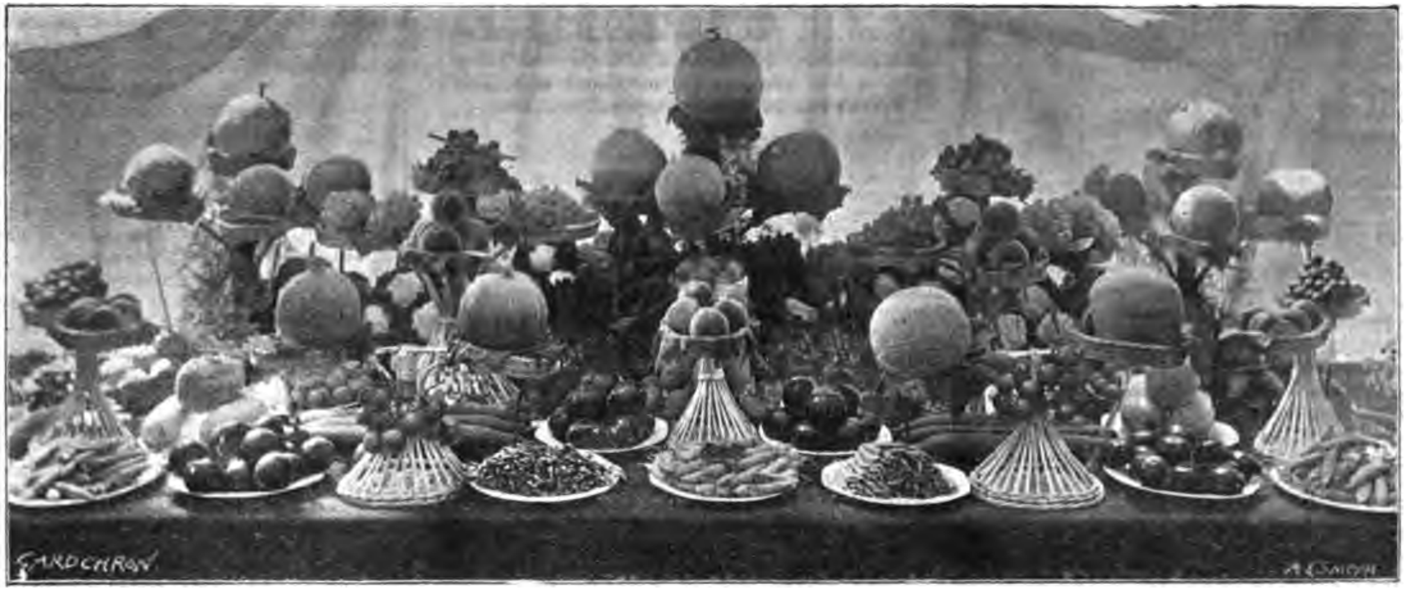


FIG. 136.—AN EXHIBIT OF FRUIT.

(Exhibited at the Temple Show by Mr. W. Bastin, gardener to H. Henderson, Esq., Buscot Park, Berkshire.)

MANURING FRUIT-TREES IN HOLSTEIN.—A method of fertilising fruit-trees in vogue in Holstein is suggestive, and not unworthy of a trial. The trees, it is said, receive no cultivation, and the fruit is large, sound, and produced in abundance. Every two years a few holes are dug in the ground about 4 or 5 feet from the trunk of the tree, and about 1 foot deep, closer and shallower in the case of young trees. These holes are filled with liquid-manure about four times during the winter months, and for young trees this is diluted with water. If there is more liquid-manure than is wanted, it is distributed over the surface of the orchard, using an old street sprinkling-waggon for the purpose. There is no reason why manure-water should not be used once or twice after it is seen what the crop is likely to be; of course, not affording any at that season to trees not bearing a crop, or which are carrying only a few fruits, as to dose them would be to encourage, probably, an unnecessary growth of shoots. But in this matter, the cultivator must be guided by the condition of the trees, and of the soil.

JUBILEE CELEBRATIONS AT GHENT. — An exhibition and certain fêtes are to be held in Ghent next July in commemoration of the fiftieth anniversary of the foundation of L'École d'Horticulture de l'État. The following is, in brief, the programme proposed:—

SATURDAY, JULY 8.—Reception of the members of the jury, the work of judging, and a lunch to the jury. In the afternoon, at 3 o'clock, a meeting in the Academic Hall of the Ghent University; appointment of a committee to consider the advancement of horticultural education; institution of the committee, and formation of sections. Lecture and discussion of the reports of the sections. In the evening a reception at the Hôtel de Ville by the burgomaster and aldermen.

SUNDAY, JULY 9.—In the morning a visit to the grounds of M. VAN HOUTTE, and the University Botanic Gardens, the former locations of the École d'horticulture. Visit to the winter garden of Comte de KERCHOVE DE DENTERGHEM, and to various horticultural establishments in Ghent and the vicinity. At mid-may the exhibition will be opened by the authorities. At 3 o'clock a banquet will be given at l'Hôtel Royal. In the evening a reception by Baron RAYMOND DE KERCHOVE D'EXAERDE in the hotel of the "Governement Provincial." Members of the Committee and their wives will receive a special invitation.

MONDAY, JULY 10.—Further visits will be paid to nursery-grounds in the neighbourhood. At 11 in the morning an association of old pupils of the School will be constituted; at 2 o'clock a meeting of the Committees will be held, followed by a general meeting and the closing of the Congress for forwarding horticultural education. In the evening, at 6 P.M., a banquet will be given in honour of foreign delegates and members of the horticultural press, succeeded by a fête in the Casino in the Gardens of the Société Royale d'Agriculture et de botanique, a concert, ball, &c.

TUESDAY, JULY 11, will be devoted to visiting Brussels nurseries, and the Royal Gardens at Laeken, and the houses of the Horticulture Internationale.

METROPOLITAN OPEN SPACES.—On Saturday, May 27, a new recreation ground was opened at Hither Green. The ground, given by Mr. CAMERON, M.P., is 2 acres in extent, and provides accommodation for tennis, croquet, and other games. It is worthy of record here, also that Mr. E. N. BAXTER, a gentleman connected with the Epping Forest Committee, has handed over to the Corporation to be added to Epping Forest, a beautiful piece of woodland, some 28 acres in extent.

JEWISH GARDENERS.—We learn from the last issue of the *Gartenflora* that besides the Jewish Training Institute at Ahlem, near Hanover, where for some years gardeners have been trained and educated with good results, another school has been established at Gablenz, near Gassen in Brandenburg, by Dr. S. PAPILSKY, the Vice-President of the Society, for the advancement of agriculture among the Jews in Germany, at which students will be enabled to acquire theoretical and practical knowledge. Certain of these students have already been through the course of instruction at the establishment at Ahlem. It is Dr. Papilsky's intention, when a suitable number of young people have given proof of their intention to join, to establish a private school of agriculture. With the view of making propaganda the Doctor has undertaken to publish an address-book of Jewish landowners, tenants of estates, and stewards.

Royal Seedsmen.—The well-known firm of Kent & Brydon, Darlington, desire us to inform our readers that they were, on June 1, appointed by Royal warrant, seed-merchants to H.R.H. the Prince of Wales.

Hybrid Anthuriums.—How M. A. de la Devansaye's efforts in improving Anthuriums were appreciated in St. Petersburg, is illustrated by the fact that he obtained the great gold medal, together with a special prize for the finest lot of stove plants raised by the exhibitor, a large silver-gilt medal for six new seedling Anthuriums, and for the Anthurium Fraxinense ×.

The Scottish Horticultural Association.—On Saturday, May 27, the members of the Society of Gardeners paid a visit to Sir Charles Tennant's garden, "The Glen," near Innerleithen; Mr. R. Laird, Secretary, and Mr. Todd, Vice-president, accompanying the party. We shall shortly give some illustrations of "The Glen," and reserve further remarks until these are inserted in our pages.

Ferns.—Professor Bower, in a recent number of the *Proceedings of the Royal Society*, May 25, 1899, pursuing his researches into the genealogy of Ferns as a basis of classification, says:—"An attempt has been made in this memoir to strengthen the characters derived from the sorus by a fresh examination of its details, and certain of its features will now be used for purposes of general comparison which have hitherto received too little attention; they are:—

1. The relative time of appearance of sporangia in the same sorus.
2. Certain details of structure of the sporangium, including its stalk.
3. The orientation of the sporangia relatively to the whole sorus.
4. The potential productiveness of the sporangium as estimated by its spore-mother cells, and the actual spore-output.

Observations of these features extending over all the more important living genera, coupled with data of habit and the characters of the gametophyte (prothallus) as collateral evidence, have led the author to divide the homosporous Ferns thus:—

Simplices	Marattiaceæ	Eusporangiatæ.
	Osmundaceæ	
	Schizæaceæ	
	Gleicheniaceæ	
	Matonineæ	
Gradatæ	Loxsomaceæ	Leptosporangiatæ.
	Hymenophyllaceæ	
	Cyatheaceæ	
	Dicksonieæ	
	Dennstaedtiinæ	
Mixtæ	The bulk of the Polypodiaceæ	

These divisions are primarily based on the order of appearance of the sporangia in the sorus, the Simplices having all the sporangia of the sorus formed simultaneously, the Gradatæ having them disposed in basipetal succession (from above downwards), and the Mixtæ having the sporangia of different ages intermixed. But it is found that other important characters run parallel with these. Thus the Simplices and Gradatæ have an oblique annulus (where definitely present), the Mixtæ (with very few exceptions) have a vertical annulus. None of the Mixtæ have been found to have a higher spore-output per sporangium than sixty-four, but this number is exceeded by some of the Gradatæ, and large numbers are the rule in the Simplices. The Simplices and Gradatæ have relatively short thick stalks, the Mixtæ usually have long and thin stalks. The orientation of the sporangia in the Simplices and Gradatæ is usually definite, in the Mixtæ it is indefinite. The receptacle is often elongated in the Gradatæ, but not in the Simplices or Mixtæ. The sum of these characters, which for the most part run parallel to one another, appears to give a substantial basis to the classification."

Bulb Cultivation in Ireland.—We note in the Dublin papers that early last week, the quaint and usually tranquil village of Rush, Co. of Dublin, was roused from its normal condition by the bustle and excitement incidental to a Vice-Regal visit. Messrs. Hogg & Robertson, seedsmen to Her Majesty, Dublin, were honoured by a command to receive Countess Cadogan, wife of the Lord Lieutenant, who, attended by Mr. Algernon Peel, Private Secretary, made an extended inspection of their bulb-farm. The Narcissus and Early Tulips were of course over, but the May-flowering species and Darwin Tulips, Ranunculus, and Anemones, were at their best, and the wealth of bloom made a magnificent display. Her Excellency was pleased to express her satisfaction with her visit, and was specially struck with the large and varied collection of late Tulips. Messrs Hogg & Robertson were honoured with an order for a large collection of Daffodils and Tulips to be sent in the autumn to Culford Hall, Earl Cadogan's residence, near Bury St. Edmunds.

Publications Received.—*Bulletin della R. Societa Toscana di Orticultura*, April.—*Tijdschrift voor Tuinbouw*.—*Botanical Magazine* (Tokyo).—*Flora Japonica iconibus Illustrata* (Tokyo).—From the Crystal Palace Company, Sydenham, London, a programme of arrangements for the forty-fifth season (1899). Among the events most interesting to us, are the National Rose Society's Exhibition on July 1; the exhibition of the Carnation and Picotee Society on July 24; the Great Co-operative Show on August 19; the National Dahlia Society's Show on September 1 and 2; and last, but not least, the Exhibition of British-Grown Fruits by the Royal Horticultural Society on September 28, 29, and 30.

PLANT PORTRAITS.

Chrysanthemum Souvenir de Madame Hélène de Reydellet, *Moniteur d'Horticulture*, May, 1899.

Erodium Manescavi, *Garden*, April 29.

Hibiscus cannabinus, *Garden*, April 15.

Liatris pycnostachya, *Garden*, April 8.

Passiflora amabilis, *Garden*, April 22.

Sorbus aucuparia dulcis, Beissner, in *Gartenwelt*, iii.

Statice Suworowi, *Revue de l'Horticulture Belge*, May.

KEW NOTES.

The following interesting plants are now flowering at Kew:—

Lonicera Hildebrandiana.

This, the largest-flowered of all the Honeysuckles, was introduced from Upper Burma in 1894, but it has only now flowered for the first time at Kew. It has two-flowered axillary racemes, and each flower is 6 inches long, and is coloured bright golden-yellow. A figure of it has been prepared for the *Botanical Magazine*. Although tried under various conditions, it has only succeeded in the intermediate temperature of the Mexican-house. At Glasnevin, however, where it flowered in August last year, Mr. Moore grew it in a sunny, airy position in a greenhouse. It was figured in the *Gardeners' Chronicle*, Sept. 17, 1898.

Rhododendron decorum.

This is one of the Yunnan species which we owe to l'Abbé Delavay. It has been in cultivation ten years at Kew, where it is now flowering in the open air for the first time. It seems to be nothing more than R. Fortunei, which was introduced by Fortune from Chekiang, China, and figured in the *Botanical Magazine*, t. 5596 (1866).

Rhododendron Championæ.

Although cultivated at Kew for nearly twenty years, this interesting plant has only flowered two or three times. It was found fifty years ago by Captain Champion, growing abundantly on rocks in a ravine at Fort Victoria, Hong-kong, and a figure of it made by him was published in the *Botanical Magazine*, t. 4609 (1851). It is remarkable for its hairy dark green, wrinkled leaves, and large pink, Azalea-like flowers. It is now in flower in the Himalayan-house.

Rhododendron Kingianum.

This plant was found in Munipur by Dr. Watt, who sent specimens and seeds of it to Kew, where it has formed a bush 5 feet high, and is now flowering for the first time. Broadly speaking, it is a form of the variable R. arboreum, and is nearest that known as R. Campbelliæ, but it differs from this and all other forms by its dense habit of growth, wide leaves, which are distinctly bullate, with recurved margins, very dark green above, dull dark brown below. The flowers are in dense conical heads, and of a rich crimson colour. In botanical characters they agree with typical R. arboreum.

Protea cynaroides.

This handsome Protead continues to grow and flower freely along with the Agaves in the Succulent-house, where it is now bearing three large Artichoke-like heads of a soft, pink colour. It is planted in the gravel bed, upon which the Agaves, &c., in pots are stood, and it gets plenty of air and sunlight at all times.

Impatiens mirabilis.

An exceptionally large specimen of this remarkable species has lately been forwarded to Kew by Mr. Curtis, of Penang, and it is now in full leaf and flower. The fleshy stem is 3 feet high, with three arm-like branches; the base 8 inches in diameter, the habit suggesting a minature Baobab. The leaves are ovate, 8 inches by 3 inches, and the golden-yellow scoop-shaped flowers are borne in short axillary racemes. Sir Joseph Hooker, when figuring this species in the *Botanical Magazine*, in 1891 (t. 7195), said, "It would be difficult to conceive a wider departure from the habit of its genus than this plant presents. It is an undoubted Impatiens, but whereas the other species are weak succulent annuals, or low-branched perennials, I. mirabilis possesses an erect naked trunk 4 feet high, and as thick as a man's leg, crowned with a tuft of many fleshy leaves, nearly a foot long." It is a native of Langkawi Island.

Lachenalia quadricolor.

By far the handsomest form, both as regards size and colour, of this distinct Lachenalia, is now flowering in the Cape-house at Kew. It agrees with the figure in the *Botanical Magazine*, t. 588, in having flowers coloured red at the base, yellow in the middle, and rich purple on the upper part of the inner segments, but it differs from that figure in having scape and leaves mottled with brown. It was sent to Kew by Mr. Butters, St. George's Park, Port Elizabeth.

Renanthera Imschootiana.

This beautiful Orchid improves on acquaintance. It was first described in 1891 from a plant flowered by Mr. Van Imschoot; Mr. Woodhall showed it in flower at a Drill Hall meeting in 1895; and in the year following, Messrs. Sander & Co. secured a small importation of it. One of these plants is now in flower at Kew, and although only 8 inches high, it has produced a scape 18 inches long, with three branches and thirty flowers, which are nearly all open. At first they are coloured bright crimson, but they gradually change to a rich old golden-yellow colour. The flowers have all the brilliance of those of R. coccinea, but the plant promises to be a better garden Orchid, in that it blooms in a small state. It is a native of Assam, and has been called R. Papilio.

Phalænopsis tetraspis.

Although introduced about ten years ago from the Andaman Islands, this species is rarely seen. A plant of it is now bearing a spike of creamy-white flowers in the Orchid-house at Kew.

Masdevallia muscosa.

The mossy-scaped species, with a sensitive-lipped flower, is represented by a large tuft at Kew, and is now in flower.

Eulophiella Elisabethæ.

This plant has found a congenial home at Kew, as it grows there with exceptional vigour. This year it has developed two lots of flower-spikes, four in February and four in May. The fog destroyed two of the first lot, and it was considered advisable to remove two of the second. Those left on are now bearing each about twenty flowers.

Coryanthes macrantha.

A fine plant of this, the phenomenal "bucket-orchid," bore a spike of two flowers in the Nepenthes-house a fortnight ago, and it is now pushing a second spike. Those who have never seen the flowers of this plant should not miss this opportunity. C. maculata flowered freely in the same house last year, and a wax model of the flowers was prepared by Miss Emett. *W. W.*

LAW NOTES.

THE PREVENTION OF CORRUPTION.

At 4.15 the House of Lords, June 6, met for the despatch of ordinary legislative business, and Lord Russell of Killowen at once moved the second reading of his Prevention of Corruption Bill. He said that the contents of the Bill had already been so fully explained that it was only necessary on the present occasion to say that the object of the Bill was to check by making them criminal a large number of inequitable and illegal secret payments. The principle of the measure had been received favourably by chambers of commerce, trade societies, and various co-operative associations throughout the country, and an almost unanimous opinion had been expressed in favour not only of the principle, but also of the stringent measures by which he proposed that the principle should be enforced. He did not desire their Lordships to understand that the various bodies to which he had alluded entirely approved of all the details of the measure, and, indeed, it was his intention to propose some amendments.

The Bishop of London said that the bill was concerned with all commercial dealings between man and man. It dealt with a common mischief, the principle of which was that no money was to pass from one person to another without some of it sticking to the fingers of some intermediate party to the transaction, and that mischief tended to destroy trust, to prevent people from being strictly honest, and to shake confidence. There was a time when even the occupants of the judicial bench received gratuities from those who were parties to litigation before them. The payment of gratuities was undesirable in itself, and also because it gave opportunities for blackmailing.

The Bishop of Winchester also warmly supported the principle of the bill.

These points were generally endorsed by the Lord Chancellor, who, however, warned the House against the danger of going too fast in legislation of this character. He concluded, however, by saying that he heartily concurred in the general object of the measure, and that the Government were not in the least disposed to offer opposition to the second reading.

Lord Russell briefly replied, and the bill was then read a second time.

Garden Labourers and the Excise.

An Important Appeal Case.

Before Mr. Justice Day and Mr. Justice Lawrance, sitting as a Divisional Court in the Queen's Bench Division of the High Court of Justice, the case of Dillon *v.* The Marquis of Bath came on for discussion on Thursday. The Attorney-General, Sir R. Webster, and Mr. Dankwerts appeared for the appellant, and Mr. Foote, Q.C., and Mr. Scott for the respondent.

The Attorney-General said this was a case stated by justices of the county of Wiltshire, and raised the question whether a certain number of men, employed by the defendant, were chargeable as gardeners or servants under the statute relating to the taxes on servants employed. The point depended on the facts and on the construction of the statute. They, on behalf of the Inland Revenue, submitted that the view taken by the magistrates was wrong, and that having regard to what the men did, they were clearly within the statute. The case stated that an information was laid against the Marquis of Bath, by the appellant, charging him with employing, at Longleat Park, a number of male servants without having taken out a licence for each of them. The summons was heard at Warminster, and it was proved that the Marquis had taken out licences for a number of gardeners and under-gardeners, but with regard to ten men and two boys, who were employed in the gardens, no licences had been obtained, and it was these persons as to whom the question arose. The appellant submitted that they did work which could only be properly described as gardening, and therefore a license was required under section 18 of the statute.

On behalf of the respondent it was contended that such persons were merely unskilled labourers, receiving labourers' wages only, and therefore did not require to be licensed, but he (counsel) should contend that there was no distinction at all for the purpose of this taxation between skilled and unskilled labour. If a man did gardening work, it did not prevent him being taxable if he was not a skilful person. Take the case of planting Cabbages. It was said skill was required, and if he were to try and do it he might make a bad job of it. He agreed that the mere fact of the men being employed in the garden did not constitute them gardeners, but because these men divided the ordinary duties of a gardener among them, that did not make them merely labourers. One might do the digging, another the planting, another the watering, and so on, but they would nevertheless be doing gardeners' duties. Therefore, he submitted, the magistrates were wrong in holding that the men were merely labourers, and not servants within the meaning of the Act, and, therefore, a licence was not necessary.

Mr. Foote, for the defendant, submitted that the magistrates were right, and said the courts had taken a view which he now contended for. It was a mistake to suppose that because a man was employed in a garden he was a gardener. He might be employed all day in simply dragging a roller about, and, whatever he was, whether he was a beast of burden or doing donkey-work, he was certainly not a gardener. A gardener must be a person skilled in tending a garden, and not doing such work as wheeling a barrow about or digging.

After further argument Mr. Justice Day said he thought the decision of the magistrates was perfectly correct. They came to the conclusion that the men were labourers, and he thought it was essentially a question of fact for them to determine, as they lived in the neighbourhood and knew what the men were. He thought the distinction whether they were skilled or unskilled made all the difference, and was most material to consider. Therefore the appeal must be dismissed with costs.

Mr. Justice Lawrance concurred, and said he did not see how any of these persons could possibly be described as gardeners or under-gardeners.

Appeal dismissed with costs.

Alleged Fraud on a Gardener.

At the North London Police Court on Thursday, 1st inst., George Clark, an elderly man, described as a clerk, of Nursery Road, Tottenham, was charged on remand, before Mr. Bros, with obtaining money from different persons in various parts of the country by false pretences. Two cases from Maidstone and Hayward's Heath were gone into last week, and other charges were now proceeded with. Harry Howard, gardener to Mr. Edward Brooke, J.P., of Ufford Park, Woodbridge, Suffolk, said that on October 1, he inserted an advertisement in the *Gardeners' Chronicle* for 150 young Yew-trees. He received a post-card purporting to come from "T. Riley, 60, Drayton Park," offering to send on 150 Yew-trees if a postal order for 30*s*. were forwarded. The writer added that his employer, Mr. J. J. Griffiths, J.P., of No. 1, Highbury Grange, was away, so that he was unable to get a cheque cashed. The witness sent on the postal orders, but the Yews never arrived, and the money was never returned. Mr. Fred Griffiths, coal-factor, of 1, Highbury Grange, said that Mr. J. J. Griffiths, J.P., was his father. The prisoner was not his gardener, and he had no authority to use his name. Various other cases were alleged, and in the end the prisoner, who made no denial, asked to be dealt with at once.

Mr. Bros committed him to the Central Criminal Court for trial.

HOME CORRESPONDENCE.

NEW VARIETY OF DAFFODIL, WHITE LADY.—We have one of the Rev. G. Engleheart's seedling Daffodils, which, we think, is a break away, in so far as our experience goes. On April 15, we exhibited blooms at Edgbaston Botanical Gardens, which were cut from bulbs in the open and fully expanded in a glasshouse. The bed gave a show of bloom for a period of ten days from that date, and the bulbs have been sending up a few blooms till the present date, each lot being smaller than those that preceded them. Those we send for your inspection appear to be the last, and they are less than half the size of the flowers at their best. It is unusually prolific in foliage and flower. We should be glad to hear if any cultivator of Daffodils knows of any similar variety. We know that it is no uncommon thing to get a few late blooms from weakly or deep planted, or injured bulbs, but the bulbs of this variety are quite healthy, and they are growing under suitable conditions. *Pope & Sons, King's Norton.*

MILDEW ON VINES: CAUSE AND PREVENTION.—Sometimes violent remedies are worse than the diseases they attempt to cure; and I consider that prevention is better than cure. I never yet saw mildew in a well managed vinery. It is encouraged generally by a cold draught, admitted by front ventilators, and not warmed by passing over hot pipes. A low temperature, and damp, stagnant atmosphere encourage the growth of mildew; and a genial atmosphere, proper ventilation and moisture, are preventives. After the thinning is finished, a little soot and sulphur placed in the evaporating pans will help to keep all sweet and healthy. In a genial, kindly summer out-of-doors, Vines in the south of England will ripen good crops of Black Hamburgh and Sweetwater Grapes, but if we get cold winds and damp, unseasonable weather, they are destroyed by mildew. Tea Roses trained to dwelling-houses are affected by the same cause. I should consider that boiling water needs to be used with great care, and Mr. Mallet would do good service if he stated at what stage the Grapes were when he applied the hot-water cure. *R. M. Newbury.*

—— In last week's issue of the *Gardeners' Chronicle*, p. 353, is an account of a method of treating the Vine-mildew by thoroughly syringing the Vines with water at the boiling-point. [Not used at the boiling-point. Ed.] I should not like to try the experiment on any plants upon which I set any value, for I feel sure it would destroy it. I have used hot-water with good effect in destroying insects infesting plants, but not hotter than 170°, and even then it destroyed all kinds of insects without injuring the plants. I never tried water at this temperature on very tender plants, although in the case of some Streptocarpus which I dipped in water at 170° quickly all the mealy-bug infesting them was killed, and the plants were not hurt at all. I am of the opinion that water at 170° is a safe and efficient insecticide, as well as cheap. When a plant is syringed with hot-water, it should be laid on its side, so that the water cannot penetrate the soil and injure the roots. *Wm. Smythe, Basing Park Gardens, Alton.*

—— I read Mr. Mallet's note on Vine-mildew in the issue of the *Gardeners' Chronicle* for

May 27, and my Vines being attacked with mildew, I tried the hotwater remedy, the varieties being Black Alicante and Gros Colman. The water acted precisely as he describes it, brown spots, showing where the mildew had been on the leaves and Grapes. Boiling-water was used on Vines, which were unaffected with mildew, and no injury whatever was visible on the foliage or fruit. *G. Littlewood, Worthing.*

PROPOSED MEMORIAL TO THE LATE MALCOLM DUNN.—I was glad to see the note of "J. S." in the *Gardeners' Chronicle* last week. He may rest assured that something worthy of the man and the occasion will be done, though those mostly concerned did far better than erect a testimonial to the dead—they honoured M. Dunn while living, and few gardeners have died more full of honours than the deceased. I have heard, however, that three Scottish societies have already had this matter before them, the Royal Caledonian, the Scottish Arboricultural, and the Scottish Horticultural Association. It seems very desirable that these societies should combine their forces with the Royal Horticultural Society of London, and any other that might wish to share in the work throughout Great Britain and Ireland, in some common purpose. But no money should be wasted in monuments or such like memorials. They would be singularly out of place here. The deceased's life and work form his most lasting record. But, perhaps, a scholarship for young gardeners, or an endowment to the Gardeners' Orphan Fund, or the Gardeners' Benevolent, bearing deceased's name, would be the best form of memorial, most helpful to gardeners, and that would have commanded M. Dunn's approval. An objection in advance has been raised by some arboricultural friends, viz., that the orphans of foresters are not eligible for election as pensioners on the Gardeners' Orphan Fund. But surely this could be readily arranged by making foresters' orphans eligible for election under the Dunn Trust. The one vital point is to secure united action in the matter, and to see to it that whatever scheme is adopted, it shall benefit the living as well as honour the dead. *D. T. Fish, June* 3.

THE USES OF RHUBARB.—There are round London alone enormous quantities of Rhubarb which goes to waste for lack of some means of utilising it. I have just seen in one of the early numbers of the *Midland Florist*, some suggestions for doing this, which may be of service to some of your readers. One is:—"To preserve Rhubarb without sugar or the trouble of boiling. Gather the Rhubarb in September, cut the stems into pieces about 3 inches in length; procure some wide-mouthed glass jars, and fill with the pieces of Rhubarb; then fill up the jars with cold spring-water, and cork tight, or tie over the mouth a piece of bladder, or use any other method which will keep the bottles perfectly air-tight (it is of the utmost importance they be hermetically sealed), and then the Rhubarb will keep till after Christmas." The person who sends this, remarks: "I have to-day (January 6) eaten of a tart of Rhubarb so preserved, and in flavour it was quite equal to the spring-grown Rhubarb, and much superior to early-forced." Another method of preserving Rhubarb is "To cut it as for tarts, and to every pound put three-quarters of a pound of sugar, and boil three-quarters of an hour thoroughly on a slow fire, stirring it occasionally. This has very much the flavour of Orleans Plums." "Rhubarb syrup.—Cut the Rhubarb as usual, then put it in a jar, which place in a pan of water till the Rhubarb is reduced to a pulp; then press it through a cloth. To every pint of juice put one pound of sugar; mix, and put on to boil; let it boil five minutes, and then stand till nearly cool. Pour the syrup into small phials—those formed of thick, dark glass are best, as the syrup is apt to ferment in thin ones. Any fruit may be made use of in this way, but Raspberries and Currants need only be pressed, not stewed. The syrup, with water added, makes a nice drink, or is valuable to whisk with cream, or for puddings." The last is—"To bottle Rhubarb.—Take the stalks in fine weather, prepare them as for tarts, then put them on in a pan with water enough to cover them; when it becomes so warm that you can only just bear your hand in it, pour the whole through an earthenware colander into a jug. Have ready wide-necked bottles, fill them with the fruit, and then pour the warm water in so as to cover the Rhubarb; tie a covering of bladder on each bottle, leaving them in the kitchen until it dries on, and then put them in a cool place out of the way of frost and damp. When wanted for use boil the Rhubarb-water till reduced to a little before you put in the fruit; this will require very little time to cook. It may be as well to mention that the bladder used will require often and careful washing in luke-warm water, and that the bottles answer better to be clear and transparent, the Rhubarb not keeping so well in dark ones. Gooseberries may be preserved in the same way." *D. R.*

DOUBLE DARK WALLFLOWERS.—Two varieties of double dark Wallflowers, Negro and Negress, have been cultivated in Lancashire gardens for many years past. The latter is the older in point of time, and Negro has always been regarded as the better one, having mulberry-coloured flowers, and a fine spike; excellent in colour, very double, and of good habit. This, it is said, was raised from seed by a Mr. Charlton. The Lancashire cottage gardens, at one time forming pleasing features on the outskirts of large towns or centres of industrial enterprise, are rapidly disappearing from many localities; houses and factories take their place. But now, in many of them, very choice old-fashioned things can be found by anyone who has the leisure to explore them. Not a few of the Lancashire operatives who possess gardens know the value of choice things, and they have always held that a good thing in a garden takes up no more room than a bad one. If one makes Middleton a centre, it would be found that within 2 or 3 miles of it are gardens which would well repay an inspection because of the interesting things to be found in them. *R. D.*

IBERIS PERFECTION.—When manager to Messrs. Dicksons & Co., I added to my love of hardy and other plants the improvement of the perennial Candytufts, and raised at Leith Walk, I. superba; and after removing to Pilsig Park the following were introduced, Climax, capitata and Perfection, and so far as I know, the first to take in hand the improvement of these beautiful and hardy border plants. *James Grieve, Redbraes.*

RHUBARB-SPINACH has been for many years a favourite dish with us when we could not get the true article. The young shoots of the Poke-berry (Phytolacca decandra) are also very nice when boiled. *W. T., Teignmouth.*

RASPBERRY-BUD CATERPILLAR.—I have to report a bad attack of the Raspberry stems and bud caterpillar (the larvæ of a moth, Lampronia rubiella). I was visiting Claverley, near Bridgnorth, on May 12 last, for the purposes of lecturing and demonstration; and on visiting the gardens at Farncote House, the lady—Mrs. Haslehurst—called my attention to the Raspberry canes, which had the appearance of having been severely cut by frost; most of the leaves and young shoots being very brown and withered. On examining some of the shoots the dark-red caterpillars were seen in the centre of the terminal buds, which had been eaten off. I sent afterwards for some specimens, but no caterpillars could then be found; they having doubtless passed into the chrysalis stage. The attack was so bad that I could only recommend the destruction of the Raspberry bed, there being no prospect of any crop the present year. Miss Ormerod gives a very good description of this moth, its life history, mode of attack, prevention, and remedies in her handbook of *Insects Injurious to Farm and Garden Crops*, and according to her account, it is by no means very prevalent, not being noticed by her before 1883, as "markedly injurious." Wherever observed, measures should be taken forthwith to prevent its spreading, either by breaking off the infested buds and shoots and burning them, or syringing the canes with some of the insecticides in common use. If the attack is a very bad one, it is the more prudent course to destroy the canes, well till the ground, and plant a vegetable crop, fresh plantations being made elsewhere in the autumn. *A. Gaut, Shrewsbury.* [This has been repeatedly figured in the *Gardeners' Chronicle*, the latest occasion being on May 9, 1896, p. 595. Ed.]

OLD FLOWERS AND THEIR GROWERS.—Reminiscences, such as those about Tulips, by "R. D.," on p. 55, are both interesting and instructive, if only for the illustrations they portray to the younger generation of florists, concerning the change in fashion, systems of culture, or the methods employed by our forefathers in their endeavour to perpetuate a fancy for such flowers as were popular and recognised by a numerous class in their day. The florist's Tulip in particular was one of the foremost of these specialties, and it is interesting to note what the old nurserymen, both English and Dutch, of a century ago, catalogued in this direction. In turning to the pages of the booklet issued by Messrs. Voorhelm & Schneevoght in 1798, and printed in Haarlem, we find amongst the class described as byblœmens, La Fraise en Crème, which I take may be translated as Strawberries in cream, priced at 150 florins each; whilst for Louis XVI., No. 1 selection, 150 florins is asked; for No. 2 selection, 100 florins each. Many other Tulips are priced at 60, 40, and 30 florins each. Among the Tulip bizarres is found Vainqueur universel, 150 florins. In the catalogue of this same firm for 1801, these values seem to have been maintained; whilst in 1805, the No. 2 Louis comes down to 75 florins; in the same list, Grand Monarque Narcissus is priced at 3*s*. each. Richard Clarke, florist, at Cambridge, offers in his catalogue dated 1793, several kinds of Auriculas at 31*s*. 6*d*. each; Carnations at 10*s*. 6*d*.; Ranunculus, 1*s*. to 21*s*. per root; Anemone seed, 18*s*. per lb.; Polyanthus seed, 31*s*. 6*d*. per oz.; Carnation seed, 105*s*. per oz. James Davey, florist, of Camberwell, offers in 1798, 100 Tulips for £10, whilst Tulip Princesse de Wirtemberg is figured at £50 each; Dowager Countess of Aylesbury, with a fine white bottom, £100 each; and Gloria florum suprema, £300. This same James Davey seems to have removed to King's Road, Chelsea, for in his list of 1805, dating from there, he offers the fine Byblœmen Tulip, La Joie de Davey, in large type, at £500 per bulb; he also asks £1 1*s*. for Lord Nelson Carnation, 15*s*. each for certain Ranunculus, whilst for his black-and-green Auricula he asks 31*s*. 6*d*. He invited free admission to see his Carnations, which were to be in full bloom on July 15, 1798; his best were priced at £5 each. This nurseryman seems to have possessed a fine collection of Ericas, for he offers fifty different sorts for 10 guineas. In the catalogue issued by Valentin Schertzer & Son, from their Magasin at Haarlem, in 1807, no fewer than fifty varieties of double black Hyacinths are quoted at prices ranging from 6 guelders to 6 florins each, whilst 20 guelders are asked for a Byblœmen Tulip. Double Lilium candidum is figured at 4 florins each, and a yellow African Gladiolus at 12 florins each. Goring & Wright, successors to Maddocks & Son, Florists, Walworth, offered, in 1798, several double red Hyacinths at £8 8*s*. each; and it is remarkable to note, whilst some five pages are devoted to the doubles, three lines only are given to single Hyacinths, and these are offered at from 1*s*. to 3*s*. per dozen. Their most expensive Tulip was a yellow bizarre called Superbissima for which 15 guineas was asked. They also offered double white Lilies of the Valley, 1*s*. 6*d*. each; yellow spotted Picotees, from Italy, from 2*s*. to 42*s*. each; double white Violets, 2*s*. 6*d*. each; silver-striped Strawberry plants, with scarlet fruit, 5*s*. per hundred; and a curious late transparent Pea, price 5*s*. per quart. John Mason, of the "Orange Tree," 152, Fleet Street, in his list for 1800, offered some Double Red Hyacinths at 105*s*. each. His most expensive Tulip is £20 per bulb, but many are offered at £10. No fewer than twenty-eight pages are devoted to Ranunculuses and Anemones, showing what important flowers they were in his day. In James Carter's Bulb Catalogue for 1843, these fabulous figures seem to have disappeared, for his most expensive Hyacinth is 7*s*. 6*d*., and the highest-priced Early Tulip is 1*s*., and the Florist's or Late Tulips 4*s*. each. Truly a great fall from the figures of forty years previously. He offers the Siberian Scilla at 6*d*. each, he also has a Snow white Gladiolus at 20*s*. each. An old print gives a faithful picture of a meeting of old-time florists at a public-house sitting-room in the suburbs of London. It will be seen they are discussing the merits of a novelty, probably an Auricula or Polyanthus; and the tankards of beer and churchwarden pipes take a leading place in the affair. It was a free-and-easy custom of the day, and differs materially from the methods followed at the present time; yet in their simple way I have no doubt their knowledge was as advanced in the particular points they had in view as our own. *Donald McDonald.*

THE PARADISE STOCK.—As one of the first to plant, prove, and commend the general cultivation of Apples on this healthy fertile stock, I do not wonder that the usually placid Mr. Geo. Bunyard seems a little ruffled, on page 354, at a recent attack made on its health and longevity. Some years ago is also too vague, and may mean many, any number from five to fifty years. Then I have been planting Apples on this Paradise for a period nearer this latter than the former, and I do not remember a single one of them wearing out or dying down of weakness, old age, or disease. In my lecturing and other tours, I have also seen and noted thousands of Apples on the Paradise, their leading features being good health, abnormal fertility, compactness, and symmetry. Naturally, we are hardly likely to find so many old Apple-trees on the Paradise, as the general use of the Paradise as a stock for our Apples is a modern improvement in fruit-culture, comparatively of yesterday. But as a matter of practical experience, I can add ten to fifteen years to Mr. Geo. Bunyard's thirty, and these venerable trees of forty or forty-five years old are bearing as good crops as ever. Yielding annual crops of the finest fruits does not seem to have impoverished them, and certainly under skilful culture and good management we have not yet reached an age-limit to Apple-trees mounted on the Paradise. I do not mean to assert that all Apples worked on the Paradise are alike healthy, fruitful, or long-lived, as all Paradise stocks are not the same or good alike. Soils, site, skill, and treatment, are of various kinds that greatly influence the health and longevity of Apple and other fruit-trees; but I cannot admit for a moment that a good strain of Paradise stock necessarily shortens the life of the tree. *D. T. F.*

MAKING ROOM AT THE TEMPLE SHOW.—That without enlarging the area of the tents at the Temple Gardens it is possible to make provision for greater variety of exhibits, there can be no doubt. Thus, whilst the finest groups, thinly and artistically arranged, of Japanese Acers were outside, two or three groups of these plants were occupying space in the tents, very much crowded, and greatly losing in grace and beauty, as compared with the pleasing effects produced by the outside groups. Surely all these can be put outside another year. Growers of Caladiums may, perhaps, object to the suggestion, but these plants show so little variation from year to year that they might for once be left out of the show schedule, and something else be substituted. Some things, which no one cares specially to name, are exhibited in too large numbers, necessitating great repetition. These things would rather gain than lose, if but one half the number of plants were staged, and those rather more thinly. It seems odd that whilst Begonias loom so bulkily, and with great sameness, we see no representation of Show, Fancy, zonal, Ivy-leaf, or other Pelargoniums, or of Fuchsias. Orchids, beautiful as they are, become monotonous when twenty collections are but reproductions almost one of another. Did exhibitors put up distinct families or genera, or restrict themselves to Cattleyas, or Odontoglossums, or Dendrobiums, &c., then the result would be very interesting. Orchids do seem to get by far the lion's share of the tent-space, and yet they are far from being everybody's plants. A considerable pruning of the space allotted to some exhibitors, thus enabling other descriptions of plants to be staged, would harm no one, and help to make the show more varied and attractive. There is no fear of having too much of forced fruit; even more than was seen at the recent show would be welcome if as good. But of vegetables, far too much that is mere packing, or of inferior merit, was seen, and some limitation might well be put on dishes, or varieties shown which should be of the very best only. *A. D.*

HARD AND SOFT WATER.—During the present hot weather, many gardeners may be obliged to use hard water to their plants, which is known to greatly injure certain species. I have been told by Mr. Le Pordevin, a nurseryman in Guernsey, that his spring water is exceedingly hard; when he is obliged to use this water he puts 4 ounces of common washing soda in each 50 gallons. He first dissolves the soda in a little warm water and places the whole in a tank, allowing it to stand twelve hours before using. The soda acts on the other minerals of the soil, and thus becomes a conveyer of plant-food to the tissues of the plants, and consequently feeds as well as waters the plants to which it may be applied. *J. J. Willis, Harpenden.*

CYPRIPEDIUMS.

IN the struggle for existence among fashionable Orchids, Cypripediums easily hold their own. Like Tennyson's brook, "Orchids may come, and Orchids may go, but Cypripediums go on for ever." Nor is the reason far to seek. The great majority of this distinct group are plants of easy culture, quick propagation, and reasonable price. This last consideration is by no means the least; as the writer of these notes has found, one can get together a large collection of Cypripediums without going to the expense and trouble of becoming a millionaire.

Cypripediums are by no means so gorgeous as the aristocratic Cattleyas, nor so dazzling as the ephemeral Dendrobiums, nor are they so graceful as the delicate Odontoglossums; yet all these drawbacks are amply made up in Cypripediums by the extraordinary range of variation they present, the great durability of their flowers, and their evergreen and variegated foliage, handsome all the year round. Thanks to recent advances in hybridisation, the dull and sombre hues of some of the larger species have been eliminated, the brilliant shades of the smaller species have been combined with the graceful forms of the larger ones, thus evolving new types superior in every way to the old natural species. All these things have tended to maintain the popularity and increase the interest in Cypripediums.

At the same time, a difficulty has arisen in the undue multiplication of Latin names for all these new forms and varieties, a difficulty which threatens to overwhelm the amateur when first starting a collection. It is with much pleasure, therefore, that we received lately the new edition of M. Desbois' well-krown hand-book, first published in 1888, and already mentioned in these columns. A comparison of the two editions impresses one with the remarkable advances of hybridisation during the past ten years. In the original edition about 150 species, varieties, and hybrids of Cypripedium were described; while in the new edition the number is increased to considerably more than 1000; in fact, nearly 1100 named forms are described.

Necessarily the work has been chiefly one of compilation, the descriptions being drawn from the leading publications on the Continent, in England and America, the *Gardeners' Chronicle* naturally holding a conspicuous place. In addition to these published descriptions, we have original notes by the author, of the varieties that have come under his own observation.

After a short introduction, we have a few notes on the geographical distribution of Cypripediums in a state of Nature. The author divides them into three groups, viz:—(1), about thirty species inhabiting the temperate regions of both the Old and New World; (2), about fifty species growing in the tropics of the Old World; and (3), about fifteen species in South America. This seems to be a fairly natural way of grouping Cypripediums in a natural state, though it should be pointed out that three of the South American species form a distinct natural group of themselves, by reason of their tall reed-like habit, their plicate leaves, persistent perianth, and globose seeds, but as none of the three appears to be in cultivation, we will not dilate on this point.

Short cultural notes are given for each group, those referring to the culture of hardy Cypripediums are particularly interesting and instructive, and are well worth reproducing here, for the sake of those gardeners who do not read French:—

"Cypripediums, generally, are found in marshy places, especially the North American species; these, for the most part, come out of peaty bogs. Often one finds them growing in sphagnum-moss and decayed vegetable matter, but seldom in earth. As regards shade and light, the species have somewhat varied tastes; for example, the beautiful C. spectabile (Salisbury) does not like to be exposed to the direct rays of the sun, and only develops itself perfectly when in partial shade; on the other hand, the little C. humile, Salisbury (C. acaule, Aiton), does not mind whether it has sun or not. Of other species in the United States, C. candidum (Willdenow) and C. arietinum (R. Brown), grow in peaty places where the roots are always wet, but the stems are entirely exposed to sunlight. The two species with yellow flowers, C. pubescens (Willd.) and C. parviflorum (Salisb.), are not difficult, inasmuch as they grow equally well in the shade or in full sunlight. They are found equally in wet and in dry places, as well as in clay soils; and they seem particularly fond of places where there is hard clay. In this respect they agree with C. calceolus (Linnæus), which always prefers a limestone soil, and which does not succeed well under cultivation unless one grows it in a hard clay soil mixed with limestone. It seems to prefer exposure to full sunlight; generally, however, it is wise to give it a little shade.

"The Siberian species, C. macranthum (Swartz), and its near relation C. m. ventricosum (Reichenbach, f.), are more difficult to deal with in gardens, but this difficulty arises, without doubt, from putting the plants into wet peat, whilst they really ought to be treated in the same way as C. calceolus. This latter species grows in company with C. macranthum, and importations of roots from the locality where they grow, contain generally a large number of C. calceolus. Under glass at York (Messrs. Backhouse & Son), C. macranthum has been cultivated with success, and has flowered well in a hard limestone soil. C. japonicum (Thunberg) is considered to be a very difficult plant to cultivate, but there is no doubt that it succeeds if grown in a clay soil instead of wet peat; it is met with naturally in damp places, shaded by Bamboos, and its fibrous roots penetrate like threads of wire into the yellow clay soil. The Siberian C. guttatum (Swartz) is perhaps the prettiest of all the Cypripediums in point of colour, white spotted with crimson; it is found on the eastern slopes of the Ural Mountains. There it is even more common than C. macranthum or C. calceolus. It grows in the forests of Birch, Pine, and Poplar, where the soil is rich in humus and constantly moist. Apparently, it is only found in the forests where the three sorts of trees, mentioned above, grow. It sprouts in the herbage and moss, and seems to desire to be submitted to the same treatment that one gives to Pyrola and Epigea. The Pelican-flower, as C. Irapeanum (Llave) is called, is found in the highlands of Mexico, at an altitude of 3000 to 3500 feet; there the conditions are such that the plants are saturated with moisture at the roots, whilst the stems are in full growth, but when the stems die down the soil is dry, and then the plant enters into a period of rest which lasts all the winter. The bad results obtained in the cultivation of Cypripediums is caused, in most cases, by placing all the species under the same conditions, generally in a moist mixture of peat; this is suitable for some species, but not for all."

M. Desbois makes some interesting observations with regard to the recent triumphs of hybridisation in the Cypripedium group, and chivalrously gives Englishmen their due as the pioneers of Orchid-breeding. The descriptions of nearly 1100 named Cypripediums, with references to figures, &c., are given in M. Desbois' book. As mentioned before, the list is divided into three groups, viz.:—

(1) Hardy Cypripediums from the temperate regions of both hemispheres, comprising about thirty-five varieties. According to the latest revision of the genus by Mr. R. A. Rolfe, this group represents the true and original Cypripedium (Linnæus). In the monograph under review, we note that M. Desbois includes Selenipedium Isabelianum (Rodr.) in the above group. This is obviously a slip; being a native of Brazil, it should be included in the third group with the South American species.

(2) Oriental Cypripediums, species, varieties, and hybrids, to the number of about 950. The new genus Paphiopedium (Pfitzer) represents this group.

(3) South American species; Selenipedium, species, varieties, and hybrids, numbering in all

about 100. The new genus, Phragmipedium (Rolfe), represents this group, except three species not in cultivation, which are examples of true Selenipedium (Rchb. f.).

We observe that M. Desbois still retains the peloriate form of Phragmipedium caudatum (Rolfe), var. Lindeni, under the obsolete genus Uropedium (Lindl.). This is unfortunate; new names are quite numerous enough without reviving old ones unnecessarily.

The names in each of the above groups are arranged in alphabetical order, a system which has many advantages; though it has its disadvantages, too, for many of the hybrids described are simply synonymous, being derived from the same cross between the same two species.

To show how thoroughly the author has done his work, one instance will suffice — no fewer than eighty-three varieties of C. insigne are described; and that it is well up to date, the inclusion of C. × Olivia, C. × Mrs. Reginald Young, and C. I. Ansoni clearly shows. Interspersed among the descriptions are twenty well-grown figures, under their respective names, one of these, C. × Excelsior Mars, being a handsome photograph. Two of the figures have somehow got misnamed, the one named C. × Marchioness of Salisbury being evidently C. × Annie Measures, and C. Fred Hardy is no doubt a misprint for C. × Mrs. Fred Hardy, a totally different plant. We are also sorry to miss the customary sign of hybridity throughout the work; without this ×, hybrids cannot be distinguished at a glance, as they should be. *C. C. Hurst, F.L.S.*

BOOK NOTICE.

OUR GARDENS. By S. Reynolds Hole.
(London: J. M. Dent & Co.)

EVERYONE interested in horticulture knows what to expect when the Dean of Rochester writes or speaks of gardening. He knows that he will be amused and interested, that old truths will be presented in a new light, and that new subjects will be so handled as to appear familiar. It is so with the volume before us. We venture to think that the garden-lover who lights on its pages, as a bee on a flower, will not leave it till he has exhausted its contents. The Dean gossips in the pleasantest style, with his old wit and enthusiasm, and his abounding charity, about the enjoyments of a garden, its formation, its components, its variations, in fact, *de omne re hortensi.* He is sound and orthodox in his gardening proclivities, so that his advice, often punctuated with humour, may safely be followed by the novice.

A second edition of so delightful a book will surely soon be called for, which will afford an opportunity for further needful revisal of the proof sheets. When we are told at p. 139, that Retinospora is a "genius" of Conifers, we are not sure whether the author may not be poking fun at the reader. The story of the Aucuba, on p. 124, must be completely inverted before its correctness can be vouched for; and how, in reference to the Lilac (Syringa), can Linnæus have "changed the title of this genus from Lilac to Syringa?" Who was responsible for calling the Philadelphus Syringa, we do not know. The mistake is so general that the unravelling of its genesis would be interesting. Certainly Linnæus could have nothing to do with it in the way here mentioned.

But these matters of detail are of little importance as compared with first principles, and we take it that the reader will be charmed with the easy flow of language, and that universal assent will be given to the following articles laid down by the Dean:—

> "More grass and less gravel.
> More flowers and less bare soil.
> More curves and fewer straight lines and angles.
> More hardy and not so many half-hardy plants.
> More arrangement and less disorder.
> More shrubs, evergreen and golden, to cheer the ungenial day."

PLANT NOTES.

HYMENOCALLIS SCHIZOSTEPHANA.

THIS unrecorded species was received with a lot of Hylines imported direct, and is presumably of Brazilian origin. At first I thought that the laciniation of the cup was due to some malformation in the flowers, especially as many of them were incomplete in the number of segments and stamens; but the bulb has now flowered with me four times, and these peculiarities have proved persistent. Leaves, six or seven, one or two being persistent, and about five issuing yearly, distichous, pedate, about a foot (or more) long, by 3 to 3½ inches wide; the leaf-stalks 2 to 4 inches long, winged, and connected at the base in a distinct neck, 3 inches long; scape, issuing from within the leaves, a foot or more in height, and bearing twelve to twenty sessile flowers in an erect, crowded umbel; flowers bearing a general resemblance to those of H. angustum of *Bot. Reg.*, 221, but the filaments very stout, and winged at the base, thus forming an irregular torn-looking cup; tubes green, 2 to 3 inches long; segments about equal in length to the tube, and ¼ inch in width; stamens shorter than the segments; style exceeding stamens, but shorter than the segments; stigma capitate; cup about ½ inch (or more) in length and width, 6-cleft nearly to the base; span of flowers, 5 inches; span of umbel, 9 inches.

This is a stove plant, and requires minimum warmth of about 70° to open its flowers perfectly; even then, many flowers have five segments and stamens, and some only four. It possesses the same fragrance as H. speciosa. *A. Worsley, Mandeville House, Isleworth.*

Obituary.

SIR HENRY BINNS.—Intelligence was received in London on Wednesday of the death of the Premier of Natal, Sir Henry Binns. The deceased gentleman was long and deeply interested in developing the natural resources of the colony he had so long since made his home. Horticulture and agriculture were much indebted to him; he early applied himself to Sugar-planting, and was one of the promoters of the first sugar-planting company established in the colony. Tea and coffee-culture received much attention from the departed Premier, who, in fact, thoroughly identified himself with the best interests of this old African colony. The late Premier was a native of Sunderland, and the life began in that busy northern town has continued a busy one until the close.

SOCIETIES.

ISLE OF WIGHT.

THE monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last. Dr. J. GROVES, B.A., J.P., presided over a good attendance of members.

An excellent paper, by Mr. Jno. Hygate, of Cowes, on the "Cultivation of Dahlias," evoked an interesting and profitable discussion. A bee-keeping sub-committee was elected to consider the best means of developing this industry in the Garden Isle.

Forty-nine new members were elected, which brings the total number on the books to about 400. On Thursday, June 1, a large number of members availed themselves of an excursion to London to visit the Temple Show. *S. H.*

SHIRLEY GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT ASSOCIATION.

MAY 29.—At the monthy meeting of the Winchester Gardeners' Mutual Improvement Association, which was held on the above date, Mr. Harry Curtis, Gardener to W. F. G. Spranger, Esq., J.P., Southampton, gave an interesting lecture on "Some Hardy Garden Flowers." The chair was occupied by A. Munro, Esq., and there was a good attendance.

Cultural directions followed for each plant named, making the lecture of value to young gardeners and others just now thinking of preparing for next spring's display.

A very fine display of hardy cut flowers was made by Mr. Curtis.

CHEMICAL MANURES FOR POT PLANTS.

THE practice that had been pursued for at least two centuries of including rotted manures in potting composts, and when these were exhausted, rendering aid to the plant by means of repeated applications to the soil, of diluted manure-water, continued till about thirty years ago, almost the only method of feeding pot-plants. Previous, however, to that time, the discovery of guano placed at the disposal of the plantsman an easily soluble manure, which, it must be said, he was not slow to avail himself of. By degrees the unquestioning belief that crude animal-manures were alone efficient, has been slowly but surely undermined, and while recognising their value as aids to cultivation, not a few cultivators deprecate their exclusive employment, and rely now very largely on chemical manures as equivalents that are, while more cleanly to use, capable of being employed with an effect almost unerring in its certainty. But when one in some degree realises the extent to which artificials now enter into the economy of high-class farming, we cannot but assume their use in horticulture to be as yet in its infancy, though no doubt the infant is marked by the possession of not a little vigour, and exhibits a tendency to shoot up rapidly; while, if we judge from the number of proprietary foods already in the market, no fear need be experienced that the child will suffer from want of nourishment.

That this subject may be treated of briefly, and yet in a manner intelligible to the many who have bestowed upon it only a cursory attention, it is, I think, not at all requisite to plunge into text-book details as to plant requirements, and the means of meeting them. Better, perhaps, to emphasise some few points, the practical importance of which cannot be overlooked. And, first of all, we may dispose of proprietary manures, all of which are naturally expensive to purchase, and judging of the value of materials, we cannot help thinking they are dear at the money. Farmers' clubs protect their members both as to price-values and quality of materials. The gardener has no protection beyond the honesty of the vendor. Some compositions, if expensive, are, however, made up of reliable constituents, and in such cases the difference in price where only a few hundredweights are used annually is really of slight importance. The case, however, stands on a different footing when slaughter-house refuse, cleanings of pigeon-cotes, or the remains of worn-out hacks, are worked up into manures, and sold at high figures. I have had examples of these through my hands that were distinctly dangerous to plants to apply. The use of an efficient general manure, composed of chemical component parts, is, on the other hand, rather to be approved than too lightly condemned. They are especially useful for mixing with composts, and it is mainly for this reason that I appreciate certain mixtures.

Turning to simple chemical materials available for plant foods, it is, I venture to say, unnecessary to employ many. Prepared composts, which have fibrous turf as a base, are always more or less fertile, and when dry animal excrements enter into their composition, they are rendered still more fertile, and experience shows the additional food required to be of a very simple nature. The writer lately examined several long glass structures filled with show Pelargoniums, with the flower trusses in various stages of development, some fully expanded, others yet in the bud. They were all good stuff, such as any gardener would have been proud to produce, yet their rooting medium was confined to the soil in pots 4 inches in diameter. The compost employed was loam and horse-droppings, and the only manurial help the plants had received were occasional dressings of nitrate of soda. I have myself applied lime-water to certain plants, and have also used as a surface-dressing sulphate of iron, but the results were, so far as could be seen, nil. Potash in its various forms I have dispensed with years ago, and the only materials I find it necessary to apply, are nitrates and phosphates. Of the former, I personally prefer sulphate of ammonia to nitrate of soda. A good superphosphate for some things, or slag flour, supplies the latter; but the almost perfect feeding qualities possessed by properly constituted composts, should never be lost sight of. *R. P. B.*

(To be continued.)

An Unfounded Report.—A report having been circulated that Mr. Maycock was leaving Luton Hoo Gardens, Major S. John Taylor, acting for Lady de Falbe, begs to inform us that there is not at present, nor likely to occur, a vacancy for Head-gardener at Luton Hoo. *June* 3.

[The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.					Rainfall.			Bright Sun.	
	Above (+) or below (−) the Mean for the week ending June 3.	Accumulated.				More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.					
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
0	2 +	66	0	− 6	0 aver	2 −	98	21·1	35	29
1	2 +	83	0	− 47	+ 21	5 −	93	15·0	54	31
2	4 +	94	0	+ 89	− 92	5 −	85	10·2	56	30
3	0 aver	81	0	+ 101	− 195	5 −	77	9·2	83	39
4	0 aver	90	5	+ 65	− 140	6 −	77	11·6	76	36
5	1 +	98	0	+ 143	− 182	5 −	67	9·9	85	41
6	1 +	77	0	− 24	− 48	7 −	96	22·2	60	31
7	1 +	86	0	+ 86	− 145	6 −	89	14·8	71	35
8	1 +	88	0	+ 123	− 121	6 −	85	18·8	85	39
9	2 +	90	0	+ 19	− 71	6 −	103	16·2	58	34
10	1 +	88	0	+ 98	− 54	6 −	87	19·3	67	38
*	1 +	101	0	+ 304	− 67	5 −	81	13·1	88	45

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending June 3, is furnished from the Meteorological Office:—

"The *weather* during this week was extremely fine and bright over the greater part of the Kingdom, but slight rain was experienced late in the week in most parts of Scotland, accompanied by thunder at a few of the extreme northern stations.

"The *temperature*, which was very low at the commencement of the period, subsequently rose quickly and became high, so that the average values for the week exceeded the mean in all districts except 'England, E.,' and the 'Midland Counties.' The highest of the maxima were registered, as a rule, either on Thursday or Friday; they ranged from 83° in 'England, S. (in London), to 73° in 'Ireland, S.,' and to 72° in 'Scotland,' W.' The lowest of the minima occurred on May 28, when the sheltered thermometer fell to 29° in 'Scotland, E.,' 30° in the 'Midland Counties,' 31° in 'England, N.W.,' and to 32° over 'England, N.E., E., and S.W.,' and also in 'Scotland, N.' Elsewhere, the lowest readings ranged from 33° in 'Ireland, N., to 41° in the 'Channel Islands.' The extreme range of temperature during this week was thus unusually large, amounting to 48° at Loughborough, and to more than 40° at nearly all the other inland English stations, as well as at Fort Augustus.

"*Rainfall.*—Slight rain occurred in Scotland and extreme 'Ireland, N.,' during the latter part of the week, but with this exception the week was quite rainless.

"The *bright sunshine* was extremely abundant, especially over England. The percentage of the possible duration ranged from 88 in the 'Channel Islands,' 85 in 'England, S. and S.W.,' and 83 in 'England, E.,' to 67 in 'Ireland, S., 54 in Scotland, E.,' and to 35 in 'Scotland, N.' The highest percentages recorded at any individual stations, were 90 at Watergate (Emsworth), 89 at Jersey, and 88 at several southern and south-western coast stations."

MARKETS.

COVENT GARDEN, JUNE 8.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Vegetables.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ...	2 0- 2 6	Mint, natural, per dozen bunches, according to size of bunches	4 0- 6 0
— Jerusalem, per sieve	1 6 —	Mushrooms, house, per lb.	0 8- 0 9
Asparagus, Sprue	0 4- 0 6	Onions, Egyptian, cwt. bag ...	3 6- 4 6
— Eng., natural, per bundle ...	1 0- 2 6	— new, bunches.	2 6- 3 0
— Various others	0 6- 1 0	Parsley, doz. bun.	3 0 —
Beans, English, Dwarfs, per lb.	1 0- 1 2	— sieve	1 6 —
— — Longpods, in sieves	6 0- 8 0	Peas, Channel Islands, Frame Telephone, lb.	0 10 —
— Dwarfs, Channel Islands, lb.	0 8- 0 9	— English, bushel	7 6- 8 0
Beetroots, per doz.	1 0 —	— French flats ...	4 0 —
— bushel	3 0 —	Potatos, Bruce, Up-to-Date, &c., per ton ...	40 0-100 0
Broccoli, dozen ...	2 6 —	— new Jersey Kidneys, per cwt.	8 0- 9 0
— crates	10 0-14 0	— — Teneriffe, cwt.	9 0-12 0
Cabbage, tally ...	5 0- 6 0	— Lisbon, per box	3 6- 4 0
— per bushel ...	1 6- 1 9	Radishes, round, breakfast, per dozen bunches	1 0- 1 6
— dozen	1 0- 1 3	Rhubarb natural, per dozen ...	1 6- 2 6
Carrots, new French, per bunch ...	0 6- 0 9	Salad, small, punnets, per dozen	1 3 —
Cauliflower, p. doz.	3 6- 8 0	Shallots, new, doz. bunches ...	1 6 —
Celery, new, per bundle ...	1 6 —	Spinach, English, per bushel ...	1 0- 1 6
Cress, doz. punnets	1 6 —	Tomatos, new English, per lb.	0 5½-0 6½
Cucumbers, per dozen	2 6- 3 6	— Channel Islands, p. lb.	0 5- 0 6
Endive, French, per dozen	2 6- 3 6	— Canary Islands, boxes	3 0 —
Garlic, per lb. ...	0 3 —	Turnips, new French, bunch	0 4- 0 8
Horseradish, new English, bundle	2 0 2 6	Watercress, p. doz. bunches ...	0 4- 0 6
— — loose per doz., fine ...	1 6 —		
— foreign, per bundle... ...	1 0 —		
Leeks, per dozen bunches ...	1 6- 2 0		
Lettuce, Cos, dozen	2 6- 3 0		
— Cabbage, dozen	1 3- 1 9		
— English, Cos, per score ...	2 0 —		

Cut Flowers, &c.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Anemones, dozen bunches	1 6 —	Marguerites, p. doz. bunches	3 0- 4 0
Arum Lilies, dozen blooms	— 3 0	Maidenhair Fern, per doz. bunches	4 0- 6 0
Asparagus "Fern," bunch	2 0- 3 0	Narcissus, White, dozen bunches ...	1 6- 2 0
Azalea, white, 12 bunches	2 0- 3 0	Orchids, per dozen blooms	6 0-12 0
Azalea mollis, per dozen bunches ...	6 0- 9 0	Pæonies, doz. bun.	6 0-12 0
Bouvardias, per bun.	0 4- 0 6	Pelargoniums, doz. bunches	4 0- 6 0
Carnations, per doz. blooms	1 6- 3 0	— scarlet, doz. bun.	6 0- 8 0
Cornflowers, dozen bunches	2 6- 3 0	Roses (indoor), per dozen	1 6- 2 0
Daffodils, per dozen bunches	2 6- 4 0	— Pink, per dozen	4 0- 6 0
Eucharis, per dozen	2 0- 3 0	— Tea, white, per dozen	2 0- 3 0
Gardenias, per doz.	1 0- 3 0	— Perle, per doz.	1 0- 2 0
Iris, doz bunches...	6 0- 9 0	— Safrano, p. doz.	1 6- 2 0
Lilium longiflorum, per dozen ...	4 0- 6 0	Smilax, per bunch	3 0- 5 0
Lily of the Valley, dozen bunches ...	4 0-12 0	Spiræa, doz. bun....	4 0- 6 0
Mignonette, dz. bun.	2 0- 3 0	Stock, doz. bunches	2 0- 8 0
		Sweet Peas, dozen bunches	6 0- 8 0
		Tuberoses, 12 blms.	0 8- 1 0

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantums, p. doz.	5 0- 7 0	Fuchsias, per dozen	6 0-10 0
Aspidistras, p. doz.	18 0-36 0	Hydrangeas, p. doz.	6 0-10 0
— specimen, each	5 0-10 0	— paniculata, doz.	18 0-24 0
Bouvardias, p. doz.	18 0-42 0	Lycopodiums, doz.	3 0- 4 0
Calceolaria, p. doz.	5 0- 9 0	Marguerite Daisy, per dozen ...	6 0- 8 0
Euonymus, various, per dozen ...	6 0-18 0	Mignonette, p. doz.	4 0- 8 0
Ferns, in variety, per dozen ...	4 0-12 0	Palms, various, ea.	1 0-15 0
— small, per 100 .	4 0- 6 0	— specimens, ea.	21 0-63 0
Ficus elastica, each	1 0- 5 0	Pelargoniums, var.,	6 0 10 0
Foliage plants, var., each	1 0- 5 0	— Zonals, per doz	6 0- 8 0
		Roses, per dozen ...	6 0- 9 0
		Spiræas, per dozen	4 0- 6 0

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian and Victorian, Ribstons, Pearmains, New York Pippin, Sturmer, Prince Bismarck, &c., per case ..	9 0-14 0	Grapes, Channel Islands Hamburghs, per lb.	1 3- 2 0
Apricots, box various numbers ...	1 6- 2 0	— Muscats, A., p. lb.	4 0- 5 0
Bananas, per bunch	5 6-10 0	— — B., per lb...	2 0- 2 6
Cherries, sieve ...	11 0-12 0	Lemons, per case...	16 0-30 0
— peck	6 6- 8 6	Lychees, Chinese, packet, 1 lb. ...	1 3- 1 4
— box	1 6 —	Melons, each ..	3 6- 4 6
Figs, per dozen ..	4 0- 7 0	Oranges, Murcia, cases of 150 or 200	10 6 —
Gooseberries, sieve	4 6- 5 0	— Valencia, &c....	16 0-18 0
Grapes, English, Hamburghs, A., per lb.	1 9- 2 6	Peaches, A., per dozen	12 0-18 0
— — B., per lb....	1 0- 1 3	— B., per doz. ...	4 0- 8 0
— Belgian, per lb., new	0 9- 1 0	Pines, St. Michaels, each	3 6- 6 0
		Strawberries, p. lb.	5 0- 7 0
		— Seconds ..	2 0- 2 3
		— French, in baskets, about 4 lb.	2 6- 5 0

Potatos.

Bruce, Main Crop, Up-to-Date, &c., 40*s.* to 80*s.*; Dunbar Main Crop, 100*s.* Jersey new, 8*s.* to 9*s.* per cwt; Canary, 10*s.* to 13*s.*; Cherbourg and St. Malo, 7*s.* to 7*s.* 6*d.*; Lisbon, per box, 3*s.* 6*d.* to 4*s.* *John Bath, 32 and 34, Wellington Street, Covent Garden.*

Remarks.—Old Potatos in little request, only a few of the best commanding a sale. New Jersey Potatos are coming in fast. Asparagus plentiful in supply, and low in price. Cauliflowers, both foreign and English, also Turnips, are now coming.

FRUIT AND VEGETABLES.

Glasgow: *June* 7.—The following are the averages of the prices recorded since our last report:—Oranges, 6*d.* to 1*s.* per dozen; Grapes, home, 2*s.* to 4*s.* 6*d.* per lb.; do. foreign, 6*d.* do.; Tomatos, Guernsey, 4*d.* to 8*d.* per lb.; do., Scotch, 5*d.* to 8*d.* do.; Cabbages, Spring, 7*d.* to 9*d.* per dozen; Cauliflowers, Edinburgh, 2*s.* 6*d.* do.; Herbs, assorted, 1*d.* to 2*d.* per bunch; Mint, green, 6*d.* do.; Onions, 4*s.* 6*d.* to 5*s.* per cwt.; Parsley, 2*s.* per stone; Carrots, round, new, 1*s.* per bunch, and 6*s.* per cwt.; Cucumbers, 4*d.* to 5*d.* each; Lettuces, round, 1*s.* 3*d.* to 1*s.* 6*d.* per dozen; do., Cos, 4*s.* to 5*s.* dozen; Radishes, long, English, 1*s.* 6*d.* per dozen bunches; Horseradish, 1*s.* 6*d.* to 2*s.* per bundle; Mushrooms, 1*s.* to 1*s.* 2*d.* per lb.; Beetroots, 6*d.* to 7*d.* per dozen; Mustard and Cress, 3*d.* per punnet; Spinach, 2*s.* to 4*s.* per stone; Rhubarb, 2*s.* 6*d.* to 3*s.* 6*d.* per cwt.; Broccoli, Irish, 2*s.* to 2*s.* 6*d.* per dozen; Turnips, French, white, 1*s.* to 1*s.* 3*d.* per bunch.

Liverpool: *June* 7. — *Wholesale Vegetable Market.* — Potatos, per cwt., Jersey, 8*s.* to 9*s.*; Main Crop, 3*s.* 4*d.* to 3*s.* 9*d.*; Bruce, 2*s.* 8*d.* to 3*s.* 4*d.*; Parsley, 6*d.* to 8*d.* per dozen bunches; Onions, foreign, 4*s.* to 5*s.* per cwt.; Lettuces, 6*d.* to 10*d.* per dozen; Cucumbers, 1*s.* 3*d.* to 3*s.* per dozen; Cauliflowers, 1*s.* to 2*s.* 3*d.* do.; Cabbages, 6*d.* to 1*s.* do. *St. John's.*—Potatos, 1*s.* to 1*s.* 4*d.* per peck; do., new, 2*d.* to 6*d.* per lb.; Grapes, home, 2*s.* to 3*s.* do.; Pines, English, 4*s.* to 6*s.* each; Strawberries, 6*d.* to 5*s.* per lb.; Gooseberries, 3*d.* to 4*d.* per lb.; Peas, 4*d.* per lb.; Cherries, 6*d.* to 1*s.* per lb.; Cob Nuts, 6*d.* to 8*d.* do.; Apricots, 1*s.* per dozen; Asparagus, 2*s.* to 4*s.* per 100; do., 1*s.* 6*d.* to 3*s.* per bundle; Cucumbers, 3*d.* to 4*d.* each; Mushrooms, 1*s.* 2*d.* per pound and basket. *Birkenhead.*—Potatos, 1*s.* to 1*s.* 2*d.* per peck; do., new, 1*d.* to 2*d.* per lb.; Peas, 4*d.* to 6*d.* do.; Asparagus, 1*s.* 6*d.* to 3*s.* per 100; Cucumbers, 2*d.* to 6*d.* each Strawberries, 8*d.* to 1*s.* per lb.; Cherries, 8*d.* to 10*d.* do. Apricots, 1*s.* per dozen; Gooseberries, 4*d.* per lb.; Grapes home, 3*s.* to 4*s.* do.; Mushrooms, 1*s.* to 1*s.* 4*d.* do.

SEEDS.

London: *June* 7.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report a thin attendance on to-day's seed market, with but few transactions passing. Clover seed is now naturally quite a dead letter. For Alsyke Clover there is some little speculative inquiry Spring Tares meet a good sale, but supplies are very nearly exhausted. Full prices are asked for Mustard and Rapeseed. Canary seed is strong at the recent interesting advance; holders in view of the universally bad crop prospects, and a further consequent rise in values expected thereon, refuse to let go their stocks, which, by the way, prove quite moderate, at the present, still comparatively low rates ruling. Hempseed continues scarce and dear. The Linseed market is steady. There is no change this week in either Peas or Haricot Beans.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending June 3, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.	
	s.	d.	s.	d.	s.	d.
Wheat	46	3	25	4	− 20	11
Barley	26	10	24	4	− 2	6
Oats	21	0	18	1	− 2	11

Answers to Correspondents

A Stiff Clay Soil: *H. C. B.* Digging or ploughing the land, and then using the subsoil plough for loosening the soil below the depth reached by the first ploughing or digging; or trenching two spits deep, but leaving the top spit for two or three years at the surface, would ameliorate its condition considerably. But it will also require manuring, and be deficient probably in humus; the decayed organic remains of vegetation which, when exposed to the air, affords a variety of plant foods. It will suffice the first year to plough or dig in quick-lime, strawy manure, fine coal-ashes, sand, garden rubbish—anything, indeed, that will maintain the soil in a porous condition, and on decaying provide food for plants. It would be advisable to have average samples, or sample, of the soil analysed, so as to obtain a knowledge of its composition, and the manures most required. A dressing of sulphate of ammonia 200 lb., dissolved bone-black 1000 lb., muriate of potash about 300 lb. and bone-meal 1 cwt., may be applied per acre, as a top-dressing, and hoed into the soil. This will in no case be a waste of money. As the annual digging or ploughing is carried out, a little of the subsoil may be brought to the surface. Hitherto, the manures you have applied have been of little avail, owing to the impervious state of the subsoil.

Books: *H. A. Davidson. The Handy Book of Bees*, by A. Pettigrew (Blackwood & Sons, Edinburgh and London). There have been several editions of this useful manual. Another good one is Mr. T. W. Cowan's *Bees and their Management*, published by Houlston & Sons, Paternoster Square, London, E.C.—*T. H. W. I.* There is no work known to us that treats only of the propagation of forest trees. This kind of information is usually embodied in works on Forestry, such, for example, as those of Jas. Brown, Dr. Schlick, J. C. Brown, C. Y. Michie, A. D. Webster, and Brown and Nisbet.

Celosia Diseased: *N. H. P.* The cause of trouble is a fungus, but the supply of material and its condition on arrival render exact identification hazardous. Try the usual measures against greenhouse fungi—more air, less moisture. Also keep the foliage fairly dry by not wetting it every time the plants are watered. Spraying with a fungicide would be beneficial, but we cannot give exact details, because as yet we have not seen results of reliable experiments. In any case, with such delicate foliage as this plant has, only very dilute solutions can be used—say potassium sulphide one-third of an ounce to each gallon of water, or a weak Bordeaux Mixture.

Correction: **Temple Show.**—Owing to a typographical error Messrs. Sutton & Son's baskets of Peas were given as being four in number, instead of forty. *Re* Cactus-flowered Pelargonium, fig. 128, of the issue of June 3, the exhibitor's name should have been Towell, not Powell; and that of the exhibitors' of Astilbes should have been Gt. Van Waveren and Kruijff, instead of M. Van Waveren.

Cucumber Plants going off at the Ground-level: *Key.* There is no disease, but the stems have become woody in appearance, and no eelworms existed on the roots. We should attribute the mishap to the use of chemical or very strong farmyard or other manures applied to the soil close to or touching the stems of the plants.

Cucumber-culture: *Market.* We would rather recommend fish-manure, or a so-called guano, or superphosphate of lime, in preference to nitrate of soda; and it would be wise to change the kind of manure from time to time. House-sewage, well diluted; soapsuds, or horse, cow, and sheep's-dung, put into a cask, and allowed to ferment for a time, form good aids to Cucumber cultivation, and they have the merit of costing but little.

Diseased Leaf of an Orchid: *W. J. K.* Although there may be fungoid growth on the leaves of the Dendrobium sent, the appearance mon in Orchids grown in an unsuitable ature, or kept continually in much heat. he new growths are completed, afford the a long rest in a cool, airy house, keeping them dry, and probably theleav es will come right next season.

Gumming in Cucumbers: *Market.*—It may be due to the presence of eel-worms at the root. Can you kindly send some pieces of the roots and gummed-fruits?

Mangold Wurzel Seed: *W. T. J.* Late in the autumn when the roots are of full size, select the finest of the variety of which seed is desired, and having taken them up intact, cut off the leaves about 4 inches from the root; then store them in a bank of sandy soil, the tops outwards, so leaving them till the spring, but taking care that the frost does not injure them. A cool cellar or root-store on the N. side of a wall are suitable places. When the roots are planted in the end of March, select an open situation sheltered from the wind, planting the roots 2 feet apart, and not deeper in the soil than they grew the previous year; make the soil firm round about them, and afford water once if the soil be dry at time of planting. If a plant throws a great number of flower-shoots, some small amount of thinning-out may be desirable; and when the flower-stalks are 1½ foot high, they should be secured to stout sticks, 5 feet high at the least; and be secured with other ties as they continue to lengthen. The seed-bearing stalks, when it is seen that the seed is fully matured, should be cut low down, and be hung in bunches of half-a-dozen in a dry shed, to be thrashed out and cleaned in the winter months. If more than one variety is saved, the plants should be placed half a mile apart, and it would be well for the cultivator to ascertain if any of his neighbours are saving seed, and act accordingly.

Manures for Fruit-trees: *H. C. B.* We give the following recipes taken from W. Semper's *Manures, and How to Use them.* To make 1000 lb.: take nitrate of soda 250 lb., ground bones 200 lb., bone black superphosphate 250 lb., muriate of potash 300 lb. Apply 500 lb. per acre. Another, ground bones, 300 lb.; bone black super-phosphate, 300 lb.; muriate of potash, 400 lb.; apply 350 lb. per acre. Per acre for all kinds of fruit-trees:—Sulphate of ammonia, 50 lb.; sulphate of magnesia, 25 lb.; muriate of potash, 100 lb.; Dissolved bone-black, 425 lb.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—R. D.* 1, Pyrus torminalis; 2, P. Aria.—*B. N. C.* 1, Mespilus germanica; 2, Saxifraga granulata, double-flowered: thanks for the buttonhole!—*W. T.* Scilla peruviana.—*H. A. B.* 1, Hyacinthus comosus; 2, Pernettya mucronata.—*J. K.* Cytisus Adami, a supposed graft hybrid between C. Laburnum and C. purpureus.—*G. M. K.* Quercus cerris, the Turkey Oak.—*F. K.* 1, Probably Dendrobium fimbriatum; 3, Dendrobium aggregatum; 6, Nephrolepis tuberosa; 7, Anthurium Scherzerianum. The two Begonias and Caladium had lost their colour; they are garden forms, difficult to name even from good specimens.—*R. N. H.* Maxillaria tenuifolia.—*A.* 1, Dendrobium Parishi; 2 and 3, Dendrobium Bensoniæ.—*M. R.* 1, Cratægus coccinea; 2, next week; 3, Scilla peruviana; 4, Lychnis dioica, double-flowered; 5, Anthericum liliastrum; 6, Veronica Teucrium.

Pelargoniums Diseased: *A. S. W.* That a fungus has established itself in the cuttings is evident. Cuttings of any kind are liable to attack by fungi unless carefully handled. The fact that your worst batch travelled and got "heated," points to that time as the period of attack. Any living parts of plants packed for transit are liable to develop moulds or other fungi on the way; we constantly find this with plants sent here for advice. If cuttings are left unplanted for any time, it is always a good precaution to remove about half-an-inch of the cut-end with a clean sharp knife before planting. In order to avoid infection from the soil, it should be clean, fresh, well-drained, and not previously used for striking cuttings. The well-known loss of Pelargonium cuttings when kept too moist, is chiefly due to fungi. In the present case, nothing can be done to save the plants badly diseased; the better ones might benefit by repotting.

Rose: *H. P.* We cannot undertake to name varieties of Roses. Take it to some extensive grower of these plants.

Roses: *W. B.* You are correct in supposing the pest to be known as Orange-fungus, and seldom have we seen a better specimen. As this fungus is one of those that vegetate in the leaves and stems of its host, the cultivator's chance of wholly ridding his trees of the pest is not a good one. At the present date of the season, all you can do is to try and destroy every bit of Orange-fungus (now fruiting) possible, by spraying with Bordeaux Mixture or other fungicides. If the plants are badly infested, it will be well during winter to give the soil a good dressing with quick-lime, with a view to killing the resting-spores; and for the same purpose, the Rose-plants may be painted with a mixture of quick-lime and soot, mixed to the consistency of paint, in a pailful of which add half-a-pound of sublimated sulphur and a small handful of coarse salt. When pruning the trees, take care that all shoots that are cut off are burned directly afterwards. This fungus was figured and described with much detail in the *Gardeners' Chronicle*, July 17, 1886, pp. 76, 77.

Spiræas Diseased: *A. S. W.* The foliage is attacked by a form of Botrytis, a group of fungi causing well-known diseases on Tulip, Onion, Lily, and Clover. The disease is not uncommon when Spiræas are kept indoors in a moist atmosphere. We have checked it by simply placing the plants out of doors. To prevent its appearance in the house, the plants should be sprayed before the leaves unfold, and onwards every two or three weeks till near flowering time. Almost any spraying mixture will do, such as soapy-water, or sulphur in water; better still, Bordeaux Mixture, potassium sulphide, or Strawsonite.

Tomatos Diseased: *H. S.* Another case of the obscure "sleepy disease." See reply to "C. J.," in a recent issue. You have, however, dropped a very valuable hint in treatment in saying, "the seedlings left in the seed-pots remain healthy, while those repotted decay off within a week or ten days." The suggestion here is self-evident.

To render a sticky, hard Soil Friable: *Puzzled.* Let the following substances be incorporated with the staple whenever there is occasion to dig it: Fine coal-ashes (the siftings of the ash-pit), road grit (scrapings), the trimmings of the roadsides if you are living in the rural districts, rough peat, ditch scourings, fine ballast (burnt clay), quick-lime at the winter digging, coarse garden rubbish put into the bottom of the trenches when the land is double-dug, and not disturbing it for three years. The land will in time get much altered in texture. Never let the hard crust that forms after rain, &c., remain intact, but break it up with the hoe.

Watering a Suburban Garden: *Puzzled.* The better time is the evening, when evaporation is the least; and although the water from the main is comparatively cold, its temperature is raised in its passage through the sun-heated soil, and no harm is done. If an application of water be thorough, as it should be, and not a mere dribble, once a week, even in sunny weather, will suffice. Always stir the soil with a Dutch-hoe, or a hand-fork, a day or two after affording water, so as the better to allow air to enter the soil and reach the roots. Of course, if the soil is light or gravelly, much watering impoverishes it rapidly, and something ought to be done to furnish plant-food thus carried to lower depths than the roots of flowering plants reach to. This may be done by affording occasionally liquid-manure, or dressing of nitrate of soda, kainit as meal, potash, &c.

Communications Received.—Sixteen Years a Gardener.—R. E. Brain.—R. M.—J. D. G.—E. T.—A. D. N.—W. G. S.—Gt. Van Waveren and Kruijff.—W. M. W.—W. T. T.—L. C.—F. A. W.—Burlington, U.S.A.—A. B., Jersey.—Dr. Hoisholt.—E. M.—C. S.—W. P.—F. A. W.—E. W. B.—R. L. C.—G. B. M.—J. K. A.—A. H. P.—E. W. B.—W. M. W. F. A. W.—W. S.—J. D. G.—R. L. C.—N. H. P.—A.—S. W.—G. H.—X. Y Z.—Anxious.—Jno. Davies.—Sir C. I.

Specimens and Photographs Received with Thanks—H. C.—Dr. W.—J. B.—M. Frœbel, Zurich.

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation *and that it is preserved for reference in all the principal Libraries.*

THE
Gardeners' Chronicle
No. 651.—*SATURDAY, JUNE* 17, 1899.

MENTMORE.

THE domain of Mentmore strikes the beholder as being magnificent on a still June evening as he passes through it from the railway station at Cheddington. This little station is of importance as being the point whence starts the branch line to Aylesbury, not far away; and as one travels by this branch a fine view is obtained of Mentmore and its park, while a glimpse can be caught of Waddesdon on the western hill. On leaving the village by road the visitor passes through many acres of fruit-orchards, mainly planted with Plums, the Prune variety largely preponderating, fringed here and there with lines of Walnut-trees, flushed with the bronzy-red of their early foliage. Then comes the avenue of Sequoia gigantea, shortly called the Wellingtonia Avenue, wherein it is seen the examples were planted in threes, in the form of a triangle, their sharp formal outlines standing out in marked contrasts with the noble clumps of evergreen and deciduous tree and shrub which alternate, and which were planned and planted by the late Mr. James Veitch. One could almost desire, for the sake of more striking effect and harmony, the English Oak, which appears to do well on the Mentmore estate, had taken the place of the Californian trees, some of which appear to be scarcely happy.

Then follows the Horse-Chestnut Avenue, the specimens forming which are now approaching maturity: there are two lines of trees on either side, each at an equal distance apart from its fellow; they are now generally in glorious bloom, and show seminal differences in the shape of outline, in the time of flowering, in the size of the spikes of bloom, in their floriferousness, in the differences of habit. But they are all doing well, and twenty years hence, when in all probability they will have matured, it will, indeed, be a noble avenue; and this is a public road, along which anyone can walk or drive, kept in excellent condition by Mr. Smith at the expense of Lord Rosebery, whose property lines each side of it.

On emerging from the Chestnut Avenue, the home grounds of Mentmore are reached. It is in them one catches the mighty inspirations of the open air and green fields, of tree and valley, as the details of the landscape alternate by the way. The early evening is, perhaps, the best time at which to see Mentmore in all its beauty, when the softening sunlight falls over the land. What a change from London's city, with its bustle and struggle of commercial life, to the cool lawn and shrubberies, the shady roadway and singing birds. "The sunlight poured its unclouded beauty on every subject that one could see. The exquisite freshness of the air made the mere act of living and breathing a luxury." And then the leading features of the place—the palatial mansion; its appropriate surroundings; the broad, sweeping approaches to it; and the perfectly-kept grounds—all imparted to the scene a sense of enchantment. Mr. Smith, who has had charge of Mentmore over twenty years, can look upon many subjects he planted quite young that have meanwhile grown into stately specimens, and improvements which have greatly enhanced the beauty and the value of the estate. Planting-out is being done on the terraces to secure late summer and autumn displays. Nesfield's Italian garden, as good an example of this style as can be found in the country, will soon be furnished. Among flowering shrubs, the Persian Lilacs are superb; and hybrid Rhododendrons in large clumps are gay with vari-coloured blossoms. Those who wish to see magnificent specimens of Conifers will find them at Mentmore; there are delightful Rose-gardens, and at every point something to arrest attention and delight the eye. What order everywhere! and yet the keeping of Mentmore must involve an immense amount of labour.

In the short time I could remain, an inspection of the houses in detail was impossible. A hurried walk through the vineries enabled one to note great promise. In the Pine-pits were splendid fruits. Plant-houses were gay; the London demand necessitates great supplies. The kitchen garden has been extended, and it occupies a great extent of slope, falling away towards Cheddington station.

A large extent of new buildings is being erected, new bothies, &c., with modern conveniences, stables, &c.; the bricks and other materials manufactured on the estate.

And then the picturesque village, not surrounding the estate, as Downing said it should, but within easy reach of the mansion, and surrounded by the grounds. It has a well-to-do aspect; there are no slums to be found here, but roomy cottages standing in pleasant gardens. The drive from Mentmore to Leighton was delightful, taken in the cool of the evening, just as the great red sun was setting in the fiery west, along roads overarched by the green foliage of the trees, almost to the confines of the Bedfordshire town. *R. D.*

NEW OR NOTEWORTHY PLANTS.

PYRUS THIANSCHANICA.

THIS new Pyrus belongs to the Aucuparia (or Mountain Ash) group, and judging by specimens from Mr. Smith's nursery at Newry, where the species has lately flowered, it promises to be a charming acquisition. There are specimens in the Kew herbarium collected by Przewalski in 1872, but the plant itself appears to have reached cultivation by way of the St. Petersburg Botanic Garden about ten years ago. It is described as a shrub or low tree, from 9 feet to 20 feet high, and the young plants in cultivation in this country promise to be dwarf and compact in habit. Like its allies, the Mountain Ash and the Service Tree, it has pinnate leaves; they consist of nine to seventeen leaflets, which are 1¼ inch to 2 inches long, perfectly glabrous, dark and rather glossy green, linear-oblong and toothed. The flowers in Mr. Smith's specimens are in terminal corymbose racemes, 3 inches to 4 inches across, the individual flower ½ inch to ¾ inch in diameter, with five round, cupped petals of the purest white. The calyx is small and green, its broad shallow lobes having usually a short mucronate tip. The fruits are in corymbose clusters, each one being round and about ¼ inch across. The species has been cultivated at Kew and elsewhere for some years past, but the flowers from Newry are the first I have seen. Possibly it may, like the Mountain Ash, be beautiful as a fruiting tree, but for its flowers alone it is evidently well worth growing. The Thianschan Mountains, from which this plant derives its name, are on the north-west confines of the Chinese Empire.

RHODODENDRON DECORUM.

The flowering of yet another of the new Chinese Rhododendrons has to be recorded. During the first week of June this species opened its flowers for the first time at Kew, and, so far as I am aware, in Europe. The Kew plants were obtained from the Jardin des Plantes at Paris in 1889, which establishment was, no doubt, indebted for them to the Abbé Delavay, who originally found the species in Yunnan. It is very closely allied to R. Fortunei, so closely, indeed, that it can scarcely be more than a geographical form of that species. The flowers are the same in colour, fragrance, and size, and, what points to their affinity still more, is that both have seven segments to the corolla. The only differences at present noted are the much more glandular peduncles of R. Fortunei, and the larger and more distinctly-lobed calyx of R. decorum. The leaves of the latter are also thicker and more rigid than in Fortune's species. In habit and in hardiness it is inferior, and unlike several other Chinese species recently mentioned in these columns, it does not promise to be of much value in our gardens here. R. Fortunei has all its good qualities and others beside. Still, in view of the interest which now attaches to the flora of Western and Central China, it may be of interest to put its first flowering on record. *W. J. Bean.*

ORCHID NOTES AND GLEANINGS.

LÆLIA PURPURATA VAR. ANNIE LOUISE.

WITH regard to this plant, which received a First-class Certificate at the Temple Show, Thos. Statter, Esq., of Whitefield, Manchester, writes:—"I believe it was explained by Mr. Cypher at the Temple Show, who was the original owner, that the certificated plant of L. purpurata Annie Louise was the same variety as that shown by me as L. purpurata Statteriana. The question arises, what is this variety in future to be styled, as there are still two more portions of the original plant, one with Mr. Schofield, the exhibitor of the certificated plant referred to, and the other with Mrs. Briggs Bury, at Accrington? I hold that 'Statteriana' is the right name, because I exhibited my plant at Manchester Botanical Gardens in 1897 and 1898, and on a later date under that name; and I received a First-class Certificate at Manchester under that name, L. p. Statteriana."

We fear that there are many similar cases, although examination of the two plants referred to at the show failed to prove conclusively that they were the same, Mr. Statter's flower being smaller and not so finely developed as Mr. Schofield's. At the show, another complication arose from the suggestion that L. p. Mrs. R. I. Measures, an inflorescence of which was present for comparison, was also the same as L. p. Annie Louise, and certainly its well developed flowers seemed nearer than those of Mr. Statter's plant. All three might have been from the same stock (though Mr. Measures' plant was taken from an independent specimen), and cultivation has made the difference.

If purchasers would honestly retain the names under which plants were bought, and vendors would faithfully sell all the parts of the same specimen under the same name given, before the plants were distributed, such confusion would be materially diminished. We fear that complications of the kind are more often intentional than accidental. In the face of the present difficulty, it will be better to adhere to the name given at the Temple show.

ORCHIDS AT ELMWOOD.

J. Wilson Potter, Esq., an Orchid amateur resident at Croydon, has had much experience as an orchidist, and has tasted the delights of success in their culture, as also the reverse, when some species have been intractable. This intractability is generally due to the unsuitability of the houses, or to something in the methods of cultivation pursued. The proof that this is the case is afforded by the improvement in the collection since its removal to Mr. Potter's new residence, and especially since they have been under Mr. Young's care.

The old set of houses at Elmwood have been added to by the erection of a rather high, long, three-quarter-span range, fitted with appliances likely to benefit the plants grown in it. Rain-water tanks are provided, shading-blinds are carried well above the glass, and the moist evaporation from an unpaved floor helps to make cool, growing conditions even in very hot weather. The large number of Odontoglossum crispum, many of them as yet unflowered, promise well for the future. Among the O. Pescatorei is the certificated plant of O. P. Sligachan variety, which, after flowering so beautifully as it did when shown, became obstinate, and did not grow satisfactorily until lately, when it again made two leading bulbs. Odontoglossum Halli is well represented, one of the forms of it being the equal of the best known varieties; and many showy species of Odontoglossums are thriving, and all are showing a marked tendency to increase the number of their leading growths and maturing the pseudobulbs.

The Cattleyas are equally promising, even small plants having numbers of young growths disproportionate to their size, especially C. Percivaliana, a stout plant of which in a large 48-pot possessed nine of them, and others five or six. The Cattleyas and Lælias grow in a commodious span-roofed house, the space beneath the stages being furnished with rockeries, planted with Tradescantias, Begonias, and other low-growing plants; the path consisting of trellis-work laid on the natural earth. This method of construction has taken the fancy of many cultivators of Orchids, and they are adopting it largely in preference to cement, stone, &c. The appearance of the Cattleyas is quite satisfactory; all of them growing and flowering in their season. At the present time, the show consists principally of Cattleya Mossiæ in variety, including a nice plant of the white C. M. Reineckiana in bud, and a fine form of C. M. Wagneri; and others in bud or flower are Cattleya Schilleriana of a very fine type, C. Mendeli, C. Gaskelliana alba, C. Warscewiczii, Odontoglossum citrosmum, Epidendrum falcatum, and E. nemorale.

In a warm house, the showy Dendrobiums are thriving surprisingly, and especially some hundreds of Dendrobium Phalænopsis, every bit of which seems to make a strong plant in a short space of time. These and other species of Dendrobium are suspended near the roof. Lælia Digbyana and Diacrium (Epidendrum) bicornutum are plants not usually considered easy to manage, which here thrive remarkably, the Diacriums coming into flower regularly. A recently-imported plant of Lælia Digbyana is showing its flower-spike. Flowering plants of Cypripedium Lawrenceanum, C. Mastersianum, and a few others are in bloom.

A FLOWERING BAMBOO.

A PLANT of Bambusa vulgaris, the B. arundinacea of some authors, but not of Willdenow, according to Dr. Stapf, flowered at the Experimental Station and Nurseries, St. Clair, Trinidad. The illustration (fig. 137) shows a branch cut from a large clump and placed in the ground for the purpose of being photographed. During the past twelve years I have seen the Bamboo in flower on three occasions only, but have not yet seen perfect seeds. *J. H. Hart, Botanic Garden, Trinidad.*

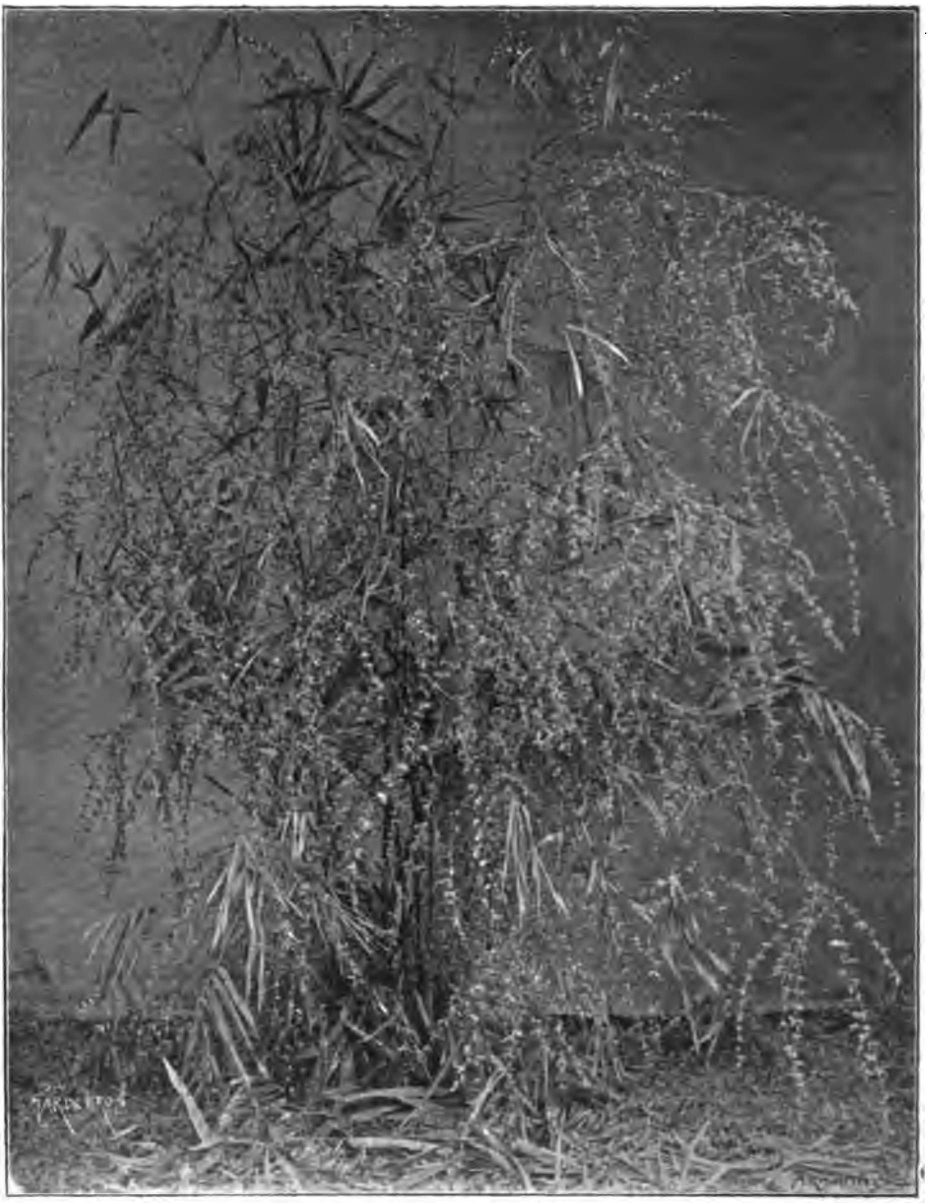


FIG. 137.—A FLOWERING BAMBOO.

CHEMICAL MANURES FOR POT PLANTS.

(Concluded from p. 387.)

THERE is, further, the varying natures of plants to be taken into account. A Strawberry, for instance, may require no food beyond that provided by the compost until the following spring, and even then two or three slight dressings of supers may be sufficient to produce high-class fruits. A Pelargonium, on the other hand, propagated in spring, and placed in its blooming-pot in June, will require occasional applications from the time it is housed in October right on till spring, and this in order that it may at no time approach exhaustion, but always be in a condition to produce flowers. The value of superphosphate in brightening colours is another point worthy consideration, and in no instance is this seen to better effect than in the case of plants with coloured foliage, of which Codiæums (Crotons) may be mentioned as an example. Not only will these plants colour better, but they may be also successfully grown for a long time in comparatively small pots, by the simple aid of the manures recommended; manure-water, to use a common phrase, is not in it in comparison. Another familiar class of plants that benefits to a surprising degree is various Palms. These may be preserved in vigorous health, and in that perfect, dark green condition of foliage which is so pleasing, simply by continued applications of superphosphate, though for these I prefer "slag flour;" and in order to produce larger fronds, free applications of nitrate of soda are also commendable.

Perhaps the most remarkable effect produced by the employment of superphosphates is that it exerts in the production of roots. Where pot-plants are lavishly supplied with water, this result is less apparent; but in my experience it has been invariably noticeable in cases where plants have been carefully watered. This fact, no doubt, explains how plants comparatively large in bulk can be successfully grown for many successive years on this food alone; and also how poor potting soils yield almost as good results when dressed with supers and nitrates from almost immediately after the plants have been potted. Composts mixed up with a larger than usual quantity of animal manures are no doubt, and possibly for the same reason, equally effective; but they are not lasting, and are always more liable to become soured through an overwatering. But it must not be expected that plants grown without repotting, even with all the aids of artificial manures, can be induced to make so good a growth as those treated regularly to fresh soil, or that poor composts by their use can be transformed into ones of equal value with those naturally of a high-class order. Their value though great is not supreme. It is worth noticing, too, that plants regularly dressed with "artificials" require a smaller quantity of water; or, to put it in another way, such plant may safely be left unwatered for a longer period than those which are not so fed. I by no means wish to insinuate soil-dryness as commendable in pot-culture, but no one can disapprove of a material that lessens the quantity of water, which may become a real agent of exhaustion, without in any degree affecting injuriously the health of the plant. As a matter of fact, a lavish application of water in conjunction with chemical-food, is a very real source of evil, as it causes a flabby growth, that however pleasant to look upon, is not seldom ruinous. This brings us to the important question as to quantities required, and methods of application. Generally an error is made in applying too much at a time, and renewing the dressing long before the previous one has been used up. A very slight dressing, often repeated is, therefore, to be preferred to one of larger quantities. It is a good rule to mix superphosphates and nitrate of soda, or sulphate of ammonia together, previous to using, and in the proportions of three of the former to two of the last named. When slag is employed it must be applied first, and the others not until a few days later. In the case of soft-wooded, rapidly-growing plants that can all be watered at the same time, the chemicals may be dissolved in the water and so applied. This, however, is a practice generally not to be commended. For one thing the manures, in the nature of the case, cannot be so evenly distributed, an extreme instance being that of a plant which at the moment requires no water, and therefore goes unfed. When, on the other hand, the manure is very thinly and evenly sprinkled over the surface of the soil, there is nothing left to chance that each plant receives its quota. If it requires water soon, so much is dissolved and carried through the soil; if longer, the material is still slowly dissolving, and in a more fit state for absorption. But in either case all fare alike. *R. P. Brotherston, Tyninghame.*

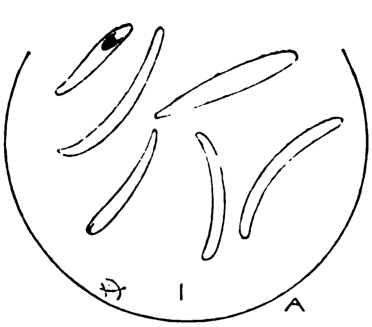


Fig. 138.—

A, Old setæ from within the worm's body, being rejected.

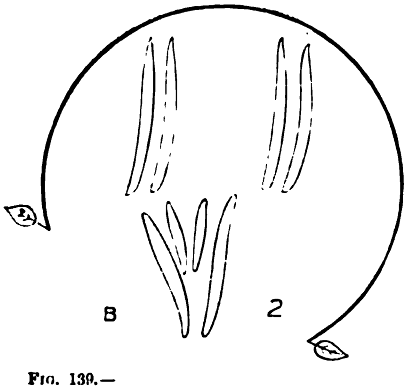


Fig. 139.—

B, Three sets of setæ. The two strong pairs from hinder part of worm's body; the set of four from anterior portion, showing characteristic form of setæ in this genus.

A PASTURE PROBLEM.

In 1895, Mr. J. Percy Moore, in some notes on American Enchytræids which appeared in the *Proceedings of the Academy of Natural Sciences* of Philadelphia, described a new species of white worm, under the name of Fridericia agricola. He made also the following statement relative thereto:—"These worms are slow and sluggish in movement, and rest most of the time coiled up more or less tightly. They are very plentiful in early spring about the lawns and meadows of Wayne, Delaware County, Pennsylvania, where they are found most frequently coiled up among the bulbous underground stems of Garlic. Later, during the summer, they become very scarce, apparently dying off, as almost none could be found on digging to a depth of 18 inches, and they did not reappear even when the ground was soaked by prolonged rains." In 1896 I found and figured this species in Cumberland; and in January, 1898, found it again by the river Eden, near Carlisle. In neither case was there any reason to suppose that the worm was injurious. I have now, however, to report it from Kent under circumstances which, to say the least, are suspicious. A short time ago (viz., during the Easter holidays), Mr. Charles Whitehead, of Barming House, Maidstone, sent me a consignment of small worms, with the following note:—

"I venture to send you specimens of a species of an Oligochaeta, evidently belonging to the Enchytræidæ. May I ask you if you can tell me what species it is? I find it in grass-land, which is suffering from some unknown cause. The grasses are dying off, and at the bases of the stems I find these Oligochaets. I am bound to say they are not very numerous, but as a rule there seems to be one at every diseased plant-base. May I ask you to tell me whether in your opinion this is sufficient to cause grass on fine soil to die off, so that the meadow looks unhealthy at a distance? It was supposed that the grasses are suffering from the water having been impregnated with gas-lime, but this would have killed the Oligochaets and other insects I found in the earth."

As the specimens supplied to me were preserved in spirits, I asked for living material to be sent, because the results to be obtained from the study of the animals in a fresh condition are always more satisfactory than when based on bottled specimens. A sod about 3 inches square, which arrived in due time, contained several living worms; and these were carefully examined with a view to the accurate determination of the species, as well as to ascertain if possible whether the worms had caused the mischief which seemed to lie at their door.

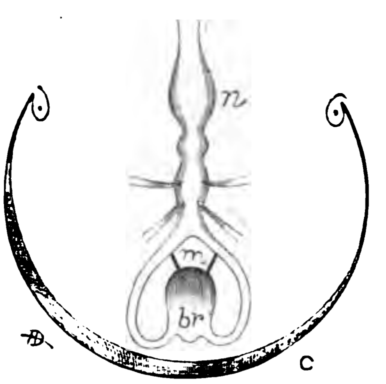


Fig. 140.—

C, Brain (*br*), or supra-œsophageal ganglion attached to nerve-chord, showing swellings (*n*) in early segments, and muscular attachments (*m*) by which the brain is fixed to the body-wall behind.

The species proved to be the same as that found by Moore in Philadelphia, and by myself in Cumberland (Fridericia agricola, Moore); and as it has never been fully described in any English journal, it seems desirable to give a pretty full account of the worm, with a few drawings, setting forth the main characteristics. There is a considerable variation in many particulars between one specimen and another, which largely depends on the age and development. I find them to be about 20 mm. or ¾ inch in length, and to consist of about 50 segments. Moore gives a length of 20 to 25 mm., and 65 segments for a mature worm. The setæ vary in number, from two to six. In some worms, only one pair of setæ is found in each bundle in the hinder half of the worm (fig. 139); but more frequently there are three or four, while five or six is the normal number in the front half. As with other species of Fridericia, the central setæ are always smaller than the outer, their proportionate sizes being represented by the camera lucida drawings appended herewith. "Sometimes the number is respectively five or three, owing to retention of one seta of the larger outer pair for a greater length of time than its fellow" (Moore). The discarded setæ seem to find their way into the coelom rather than fall outside the body, and they then appear more or less rubbed down or imperfect, as seen in the illustration (fig. 138). I find the head-

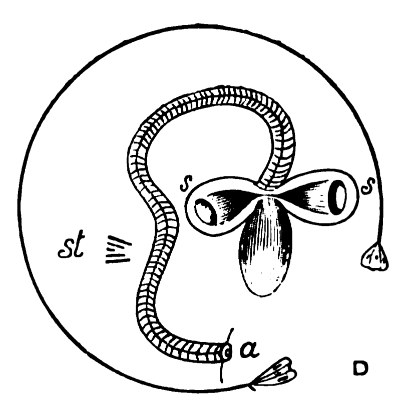


Fig. 141.—

D, Spermatheca from segment five, with aperture (*a*) between fourth and fifth segments. Shows two sacs (*s*) and a set of setæ in situ , drawn to the same scale.

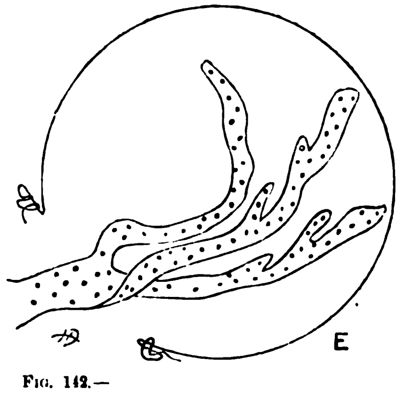


Fig. 142.—

E, Extremity of one of the salivary glands, or peptonephridia.

Drawn by the author from fresh material under the camera lucida.

pore between the prostomium and the first segment, and the dorsal pores commencing with the seventh segment, as Mr. Moore remarks.

Coming now to the study of the internal characters, we find the following distinguishing features. Moore says the brain, or supra-œsophageal ganglion, is like that of F. longa, Moore; two-thirds as broad as long, and convex behind. This agrees with my woodcut (fig. 140), but I may add that the front also has a prominent convexity. The nerve-chord also in the front segments shows some features which are characteristic. "The salivary glands are conspicuous, and each is divided into from five to seven slender tubular branches, which may themselves be simple, or provided with one or two lateral twigs. The tubes are of very irregular diameter. As Mr. Moore gives a figure of one of these glands, it may be compared with my own (fig. 142), taken from microscopic preparation with camera lucida. The same applies to the spermathecæ (fig. 141), which open between segments four and five, lying in the latter segment in contact with the intestine. "The long, slender stalks are from six to seven times the length of the sacculated portion. The enlarged portion consists of a central thick-walled cylindrical region, capped by a thinner-walled, more or less conical piece, which at its apex opens into the œsophageal lumen. A single pair of accessory sacs arise opposite to each other from the base of the thick-walled region." In one specimen from Kent the sacs were triple, in this respect allying the worm to F. ulmicola, Friend. "These sacs," Mr. Moore continues, "are of subspherical, or sometimes more or less flattened shape [depending on age and development], and when fully developed, quite as large as the primary sac. No glands are present at the mouth of the spermatheca." This is a point of great importance for purposes of diagnosis. Mr. Moore says nothing of the septal glands. I find these to consist of three pairs, lying in segments four, six, and seven, the sacs of the spermathecæ being in segment five. I have not yet studied the nephridia, but Moore says "the anteseptal portion is ovate, the post-septal slender, with a dorsal lobe about equalling in size the anteseptal. The terminal duct passes forward nearly to the septum, and then bends sharply backwards to its external pore." I have studied the blood-vessels of the first four segments, as it seems to me that a little more attention needs to be paid to this characteristic. I find that the prostomium sometimes tends to become papillose. In the adult worm no setæ appear on segment twelve where the girdle is situated. A pair of large pores occur here, from which protrude hyaline sacs. The girdle usually extends into the thirteenth segment. I have not observed the segment in which the dorsal vessel originates.

The question now arises, is Fridericia agricola, Moore, injurious to grass and cultivated plants? I am bound to say that when I found it in Cumberland, there was not the slightest ground for suspicion. In the one case it was discovered at a roadside drinking-trough, where the water from upland pastures trickled over moss and grass. In the other case, it was just under the crown of the soil in grass by the water-side, and was, in my opinion, living on vegetable *débris*, and not on the living grass. I have enquired of Mr. Whitehead whether the meadow was low-lying, and find it is so. I should say the worms are not hastily to be condemned; though they were found in the stems of grasses, they may have been there as scavengers, because the grass was already injured. A wide field of inquiry is opened up, and as I have for some years been making a special study of the white worms in relation to agriculture, floriculture, and horticulture, I propose to give some account, in some further articles, of white worms found in the manure used for gardens and pastures. Meanwhile, I shall be glad to hear of any facts which tend to throw light on a subject which is of the highest importance in its bearing on the future of agriculture. *Hilderic Friend, Ocker Hill, Tipton.*

DESTRUCTIVE FUNGI.

A Willow-Destroying Fungus (Cryptomyces aureus, Mass.).—A visit to the Norfolk Broads when the ground is covered by snow all over the rest of the country, is not perhaps an ideal way of taking a holiday, but certain fungi have to be obtained during the winter if one wants them to germinate to the best advantage. On the banks of a stream running into one of the Broads a number of stunted Willows were observed. On examination it was found that their stunted growth was due to this parasite, which, at the time of observation, was in full vigour, for evidently this is a fungus which fructifies at all seasons of the year. It was originally figured by Sowerby in his *English Fungi*, t. 356, under the name of Sphæria aurea. It first appears on the young twigs, upon which the shining black patches are surrounded by a very marked bright yellow border that contrasts strikingly with the smooth green bark. On rather older twigs the yellow circumferential zones are not so distinct, while upon older branches still they are practically not observable. After a time the shining outer stroma covering the young spots ruptures, and the sporidia escape very much after the style of the Rhytismæ. The patches of disease extend in a centrifugal manner, so that the branches denuded of their bark, with the outer segment of the woody tissues dead and blackened by the fungus, present a very deplorable appearance. The affected branches die after a time, hence the blighted and stunted look of the affected shrubs. *C. B. P.*

An Elm-tree Parasite, Polyporus Ulmarius, *Fr.*

This is a fungus the sporophores of which are not found every day, probably because they are not looked for in the right place. Unlike most Polypori the pilei are formed inside the tree, not outside, hence it is useless to look for them excepting in hollow trees. It has long been known as a British fungus. Sowerby figured it in his *English Fungi*, t. 88, in 1797. Mr. Berkeley in the *Outlines* says it is found "in old Elm trees," and that it is common. His figure, plate 16, fig. 5, is a very poor one, for instead of the pileus being blackish, as he represents, it is whitish. The margin is always white, and the tubes yellowish or orange, not alternately red and white, as his figure shows them. In reality, it seldom forms a pileus at all—at least, not a pileus with a free edge. The specimen on this page (fig. 143) was gathered from the interior of a huge Elm, overturned by the wind, which grew at Ashwicken Hall near King's Lynn. There were about a dozen specimens, only one of which had formed a dimidiate pileus; the others were effused. The total number would never have been suspected had not the hollow stump been large enough to crawl into. They were then seen affixed not only to the sides, but adhering to the roof of the tunnels, which represented the main roots. As a matter of fact, we must regard Polyporus ulmarius as an Elm-hollowing parasite. It is unlike P. fraxineus, for when this fungus once attacks a living Ash, the tree is doomed, and seldom lives, according to my experience, more than a year or two; but with P. ulmarius the case is different, the affected trees become hollow but continue to live for years. Both species are found most frequently upon the base of the trunks. A section of P. ulmarius shows that it is perennial. The yellow-brown tubes contrast with the white flesh, so that it is easy to see the manner in which the sporophores have been developed. How they are superimposed one upon another, and that not only so, but that the earlier are included in the later. The point which interests us is that it is essentially for its manner of growth, a tree-hollowing fungus, and that it is a true parasite. The question of "tree hollowing" is one which has not received the attention it deserves. Hartig has shown how P. annosus (Trametes radiciperda) causes piping in Larch-trees by the mycelium creeping along the roots, and so upwards into the trunk; the attacked trees, however, are soon killed. But what causes the hollowing of our Ash, Willow, and Oak-trees? In a communication I made some time ago, I pointed out how the Oaks of Sherwood Forest were affected when they fell a prey to Polyporus sulphureus—by having the whole of the interior of the trunk destroyed. P. ulmarius does the same for the Elm; but what is the cause of the Willow losing its interior? This is a question well worth working out, for Willow wood has a distinct commercial value for certain purposes. The note on "A Mammoth Willow," on p. 215 of the *Gardeners' Chronicle*, April 8, 1899, shows how comparatively seldom these trees attain any size in a condition of commercial value. *C. B. P.*

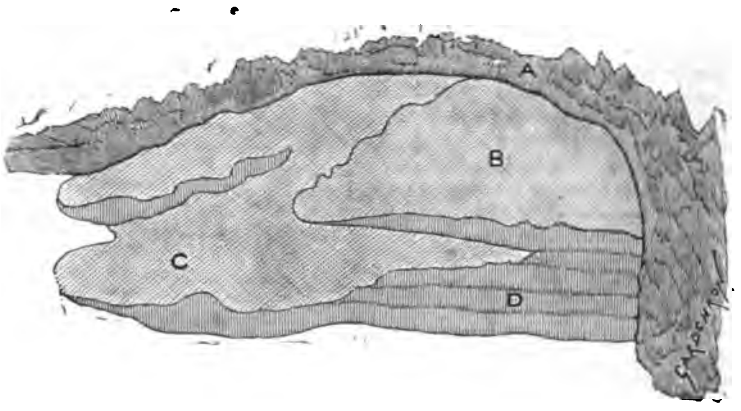


Fig. 143.—Polyporus ulmarius: parasitic on the elm.

A section showing the stratose tubes, from a semi-effused specimen growing on the upper side of a hollowed main root of an Elm, at Ashwicken Hall, King's Lynn, April 3, 1899.

A, Rotten wood; B, Last season's pileus included in this season's; C, Sporophore; D, Stratose tubes. *C. B. P. ad nat. del.*

Ditopella fusispora, *De Not*, an Alder-destroying Parasite.

During the past winter my attention has been directed from time to time to the Pyrenomycetes of the common Alder (Alnus glutinosa). In the month of February, some observations were made which may be of interest. February is the month *par excellence* in which to find the Sphæriaceæ in fruit, as the late Mr. Frederick Curry pointed out to me more than thirty years ago. By fruit, we then meant ascigerous fructification, and in those days our interest was with what the fungus was like, whereas, now it is more with what it does. No one dreamed at that time that Sphæria ditopa, Fr., as it was then called, was anything but a saprophyte which grew on dead Alder sticks, because they were dead. That the Pyrenomycetes are many of them true parasites seems somewhat difficult for us in this country to grasp, so essentially conservative are we in our intellectual proclivities, yet such is the case; although many of the Spheriæ are both saprophytic as well as parasitic in their mode of life.

The fungus in question (fig. 144), is found upon dead Alder twigs while they are still attached to the trees. The bark of the affected branches assumes a bright red-brown hue, which contrasts strikingly with the dark greenish hue of the bark of the living twigs. If an affected tree or bush be examined, it will be seen that while many of the red-brown shoots are dead quite down to their attachment to the trunk, yet there are very many in which the tips only have lost their vitality, as in the specimen sent (fig. 144, ^{1}). The line of demarcation between the dead and the living tissues is so abrupt, that it is evident the tree has made an effort to limit the inroad of the parasite, in much the same way as gangrene is limited in animal tissues. Another point is that the fungus is a wound-parasite, for the affected twigs all show an old injury of some sort. This may be a broken end where an animal has bitten a piece off, or partial break; a "green stick fracture" from somebody or something brushing roughly past, or where a minute lateral spray has been knocked off, or even a clean-cut end, the wound made by a pruning-knife or a hedge-trimmer's tool. On the dead portion of the twig one finds a number of black dots, the ostiola of the perithecia, which not only project just above the epidermis, but are the summits of distinct conical elevations, caused by the upheaval of the cuticular layer of the bark by the perithecia; these can be both seen and felt. If the outer layer of the bark be peeled off, the perithecia will be found to come off with it, and to adhere to its under-surface as little black dots (fig. 144, ^{2}).

Should the examination happen to be made where the fungus is in full vigour, the perithecia will be seen as plump, spherical, black bodies, like Mustard-seed, filled with whitest jelly (fig. 144, ^{3}). If the plant is past its best, or if the twig be thoroughly dry, then the perithecia will be collapsed, and instead of being spherical they will be concave or saucer-shape (fig. 144, ^{4}). Much, therefore, depends upon the time of the year the dissection is made. Dead twigs hang on Alder bushes all the year, and probably for more than the year, but the perfect fungus will only be encountered during the winter months, say, between December and March. Its mycelium would be present, no doubt, in an active, but by no means an easily recognisable condition until the perithecia are formed. The whitish jelly consists of a mass of asci and sporidia. The asci are about 100 m.k. long, and 15 wide (fig. 144, ^{6}). The sporidia (fig. 144, ^{5}) are numerous, 15—25 by 2—3 m.k. Dr. Rehm thinks there are 24 in each ascus, but they are very difficult to count, as they adhere to one another.

Ditopella fusispora is not the only pyrenomycete parasite upon Alder; for as long ago as 1888, Dr. E. Rostrup, in a paper entitled, "Under sægelser over Snyltesvampes Angreb paa Skovtrær," 1883—1888, p. 224, has shown that Cryptospora suffusa in its ascigerous condition, is parasitic in habit; while more recently V. Tubeuf in 1892, in a paper entitled, "Zwei Feinde der Alpenerle," shows that in the Alps, Alnus viridis is the host of Valsa oxystoma, Rehm, and that considerable injury is caused by it in the Tyrol. In the account of Tubeuf's work on this point, as given in the English translation of his *Diseases of Plants*, p. 226, a curious slip occurs, where it is said, "Most of the other species of Valsa cause only leaf-spot, or occur on dead leaves;" since Valsa is not a folicolous genus at all, but purely corticolous. *Charles B. Plowright, M.D., King's Lynn, Norfolk, April* 10, 1899.

FLOWER NOTES FROM EDGE HALL, MALPAS.

Never was a more complete transformation effected in a garden from a nearly flowerless condition at the end of May to a general gay display on the tenth of June. So long a series of cloudless suns is very rare here, and recalls to me the time a few years ago when an enthusiastic neighbour used to drive 3 miles at seven in the morning to catch my Cistus flowers at their best. All my gayest hardy plants are on borders and slopes facing the East, and the way to admire all flowers is with the sun at your back. But when the light has got round into the western half of the sky the effect is spoilt, for hardly any flowers can face a western sun in its full blaze without having a withered look. In short, as a general rule East is the best aspect and West the worst for hardy flowers, and early morning is the time to see them in summer.

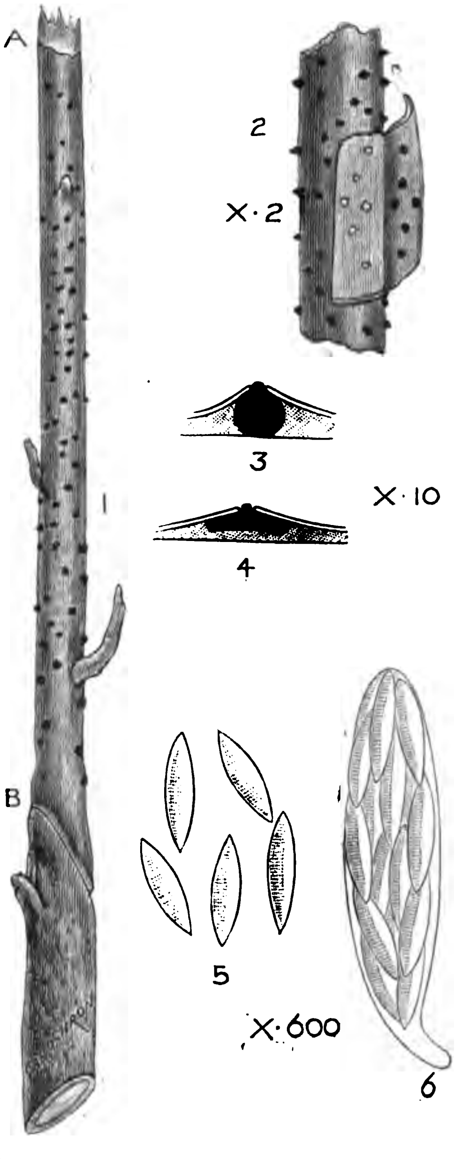


Fig. 144.—Ditopella fusispora: a parasite of the common alder, Alnus glutinosa.

1. A twig, the upper part of which has been killed by the parasite. The upper end (A) shows an old fracture, through which the parasite gained admission. Towards the lower end the line of demarkation between the dead and living tissues (B) is very distinct. The perithecia are scattered over the affected area (reduced half).
2. A portion enlarged 2 diameters. A piece of the epidermis has been lifted up and rolled back, showing six perithecia adherent to it; on the corresponding surface of the bark, depressions are visible into which the bases of the perithecia fitted. Scattered over the rest of the fragment, the prominent black ostioles of numerous other perithecia are to be seen.
3. A perithecium at maturity (×10).
4. A perithecium from which the sporidia have escaped, leaving it collapsed and empty. The same collapsed condition occurs from simple desiccation (×10).
5. Five sporidia (×600).
6. Ascus containing numerous sporidia (×600).

Charles B. Plowright, M.D., ad. nat. del.

Poppies and Irises seem never to find the sun too bright. The best perennial Poppy I have is Mr. Carrington Ley's hybrid of P. orientale; it will never be common, because few gardeners will take the trouble to nurse it up from small pieces, as it requires. But I have now several plants of it 4 feet across, with thirty or forty flowers open at a time, with the prospect of a second edition in autumn. The flowers support themselves on elegantly-curved stems, at different heights from the ground. A contrast to this is the upright and stiff-stalked P. bracteatum, 6 feet high, with huge deep blood-red flowers, which I raised from seed as a novelty in my garden at Eton fifty years ago, and have had the original plants, propagated by divisions, ever since, and still consider it by far the best of the polymorphous Oriental Poppies.

About Irises I cannot boast much. Last year the flag Irises, commonly called "German," were attacked in the leaves by a destructive mildew which seemed to descend from the top to the bases and rot the tuber. I dug up and burnt all the worst, following the usual advice of plant doctor, in such cases. Those which were spared are now flowering more profusely than I ever have seen them doing, and I look in vain for a trace of last year's mildew.

St. Bruno's Lily is a beautiful plant, which is worth improving by selection. The old type, dwarf and compact, has some tendency to hide the flowers amongst the foliage, whilst the form called in nurseries majus, or giganteum, flowers only on the part of the stalk above the leaves, and looks overgrown and top-heavy. But there is every intermediate, and they grow altogether, as I have seen them, in the same valley in the Pyrenees; and as they seed freely in gardens, selections may be made with foliage thin and flower-stalks plentiful. In parts of the garden where a wilderness is allowed to prevail, Thalictrum aquilegiæfolium and Asphodelus ramosus are now making a great show. An authority in art told me I ought to weed out the purple meadow Rues, growing only the white; but I own I like them mixed, as I have seen them by their native streams in the South of France. As for the Asphodel, the same friend was delighted to see it, as she only knew before the pretty name and the pretty fable of the Elysian meadows where it grows. It is true that a dense mass of these stout stalks, 6 feet high, might rather impede the free movement of mortals, but ghosts might float through them without inconvenience; but perhaps the Asphodel which Homer knew was quite different from what men now call by that name. Heuchera sanguinea suffered very much from the wet winter followed by hard frosts, and is only now recovering partially; but a hybrid of it with H. cylindrica, having flowers of a varied and lively pink, is much more hardy, and is now very full of flower. This is the best of several hybrids which H. sanguinea has produced in my garden, and ripens seed which grows into many fresh varieties of colour, from white to scarlet. Incarvillea Delavayi, a Chinese perennial, now getting into general cultivation, with pink flowers like those of a very large Mimulus, has done very well this year. It hardly looks as if it would rough it in an ordinary border; if it does, there will be no limit to its quantity, as it seeds abundantly, and is easily raised. For one or two winters it seemed as if it would not be hardy, but with a small pyramid of ashes over the crowns, and a well-drained position, more than a dozen plants in different parts of the garden seem all to have survived; and some have two or three stalks, each bearing two or three flowers. The orange-coloured variety of Meconopsis cambrica, which I brought some years ago from the Pyrenees, seems a more robust form with larger flowers than the yellow type; but it has not the bright orange to be found in Papaver nudicaule.

Speaking of orange-coloured flowers, why is Trollius "Orange Globe" so named? I bought it, expecting it to be orange-coloured, and when I sent a flower and a remonstrance to the nurseryman, he told me it was quite genuine and orange—but I call it yellow. I have for several years grown Trolliuses (hybrids, I believe, of T. asiaticus), and improved them by selection till I have a strain of the colour of Calendula officinalis. The so-called "Orange Globe" is a fine handsome flower, which I cannot beat for size, but is far from being of that colour.

I will mention only three alpines. Æthionema grandiflorum, some of the plants densely flowered, and 2 feet across, is the brightest ornament of my rockery, very vivid pink. My friend the lady artist, mentioned above, tells me I ought not to admire the colour, as it is "too pink;" but I do admire it—very much. Another alpine of which I am proud, which is also very bright pink, is Lychnis Lagascæ. For many years I could never keep it through winter; the tender perennial stalks were broken to pieces by snow and frost; but I now grow it in abundance on the perpendicular face of a brick wall, where it thrives wonderfully, some of the plants being several years old, and 9 inches or more across, and now quite full of flower.

Lastly, Oxalis enneaphylla, a very elegant and distinct Sorrel from the Falkland Islands, has now proved itself quite hardy through several winters. The climate of the Falkland Islands is much milder in winter than that of England, ice seldom being half-an-inch thick; but I have now several good plants from there which the storms of their native land seem to have prepared to resist greater cold than they have felt at their home. *C. Wolley Dod, Edge Hall, Malpas, June* 10.

PLANT NOTES.

IVY-LEAVED PELARGONIUM "MRS. HAWLEY."

THIS is a new variety raised by Mr. Hawley from Souvenir de Charles Turner, and is being distributed from the Royal Nursery, Slough. It was brought before the Floral Committee of the Royal Horticultural Society at the recent Temple Show, but not in good condition; and it was thought by some to be too much like the variety from which it originated as a seedling. In one of the Pelargonium-houses at Slough, there is, on a plant-stage, a large batch of each of the two varieties, placed there for the purposes of comparison. This comparison enables the points of difference to be noted. Free in blooming as the parent is, the child surpasses it; its wonderful floriferousness is one of its leading features; the flowers have more of crimson in them, and less of magenta than those of the parent; they are therefore rightly described as being darker, while the habit of growth is quite distinct. There are a large number of plants in 48-pots, and they serve as a suitable illustration of the marvels produced under good culture in a 48-sized pot. As a decorative ivy-leaved Pelargonium for decorative purposes, bearing double flowers, it is well worth cultivation. Of its entire distinctness I have not the slightest doubt, after an opportunity of seeing the two side by side. *R. D.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Cattleya Skinneri and C. S. alba.—Although most Cattleyas succeed when grown in baskets, these should not be used generally owing to the difficulty that arises when the plants need larger ones, it being necessary to place the old basket bodily into a new and larger one, to prevent irreparable damage to the roots. But for the species C. Skinneri, nothing serves the purpose so well as teakwood baskets, and providing the potting operation be performed in an efficient manner, a long period will elapse before a larger one is required. Plants whose growths are still within the confines of the basket need be re-surfaced only with new peat and fresh sphagnum-moss, first removing as much of the old material as may be done without injuring the roots. Other specimens may be carefully removed from the baskets they are now growing in to others of larger sizes. So dispose the rhizomes that the growing point will incline towards the centre of the basket. Use plenty of crocks, and, with the exception of those pieces placed at the bottom of the basket, the rest should be placed in as upright a position as possible. The plants will thrive best if suspended from the roof, or, failing this, they should be raised considerably above the stage, so that abundance of air may circulate around them.

C. Bowringiana and C. citrina.—C. Bowringiana is now making new growths, and great care is needed in watering the plant. The species requires a long, complete rest, and even now only sufficient water to prevent the bulbs shrivelling should be afforded. Place the plants in a light position in the Cattleya-house, and do not permit thrips to obtain a foothold. C. citrina having flowered, should be suspended in a light and airy position in a cool-house, and be afforded sufficient water as will prevent the newly-made pseudo-bulbs from shrivelling.

Trichopilias.—T. suavis, tortilis, crispa and marginata succeed best in baskets, which are suspended from the roof of the Cattleya-house, in a position where there is the greatest degree of shade, and excepting when the plants are rooting actively, a very moderate supply of water is needed. In most instances the plants have passed out of flower. Pick away some of the old potting material and resurface with good peat and fresh sphagnum moss, using the latter sparingly. Any specimens requiring new baskets, should be carefully removed by taking out the corner pins of the baskets, and afterwards the bars separately. Afford a good supply of drainage materials, and surface with fibrous peat and a few bits of sphagnum moss. T. coccinea, and T. (Helcia) sanguineolenta, require to be grown in pots, otherwise the above treatment will be suitable. T. fragrans, and the large-flowered form, nobilis, need a cooler temperature, and I generally place them with the Odontoglossum crispum, the treatment they require being similar. But when the bulbs have become matured, water will only be required at long intervals of time.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Sweet Cherries.—The fruits on the earliest Sweet Cherries on wall-trees are swelling rapidly and changing colour, and the trees should be covered with nets to safeguard the fruits, or the blackbirds, thrushes, and starlings will devour them as fast as they change colour. Bigarreau de Schreken, a good and free-cropping Cherry, is one of the earliest, and fruits of this variety are now nearly ready for consumption. In suspending nets from the top of a fruit-wall, a few forked sticks should be made use of for keeping it far enough away so as to prevent the birds reaching the fruits through the meshes; at the base it may be pegged out a yard or more away from the wall. The ends should be carefully secured to the wall. Should black-fly infest the shoots, the points of those not required to be laid in should be removed and burnt, while for those which must be retained a strong extract of Quassia should be prepared, and the points dipped in it, as syringing or wetting the fruits with this bitter insecticide is not permissible at this date. Trees of later varieties should be afforded water copiously at the root weekly, more especially if the weather be hot and dry, and the land of a light nature.

Currants and Gooseberries.—These fruits are making a good deal of growth, and the laterals may be stopped by pinching out the point of the shoot at the fourth or fifth leaf. Currants are often infested with fly on the points of the young growths, and the pinching destroys many of the aphides. The main shoots of young bushes, or those whose size it is wished to increase, should be allowed to extend without stopping the points. These may be dressed with Quassia, as recommended for Cherries. Where large ripe Gooseberries are required for the dessert, the more heavily-cropped bushes should be thinned of some of the unripe fruits whilst these are still small. If red-spider appears on the foliage, afford the bushes two or three drenchings with the garden-engine on successive evenings, making use of a weak solution of Gishurst Compound-soap and water, or strong soap-suds made with soft-soap; and a few days afterwards apply clear water to clean the bushes of all traces of soap.

Caterpillars of the Gooseberry Saw-fly.—If the attack of these troublesome creatures is not a severe one, hand-picking or shaking the bushes after spreading a sheet beneath the bush will suffice to clear them. The poisonous Hellebore-powder, commonly recommended for this kind of insect destruction, should only be used when other means have failed.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Potatos.—The plots of late Potatos should now be moulded up, first hoeing between the rows, and pulling up any large weeds. Should the soil have become hard, let it be dug with a fork carefully between the rows, after which the earthing-up may be done. Field-potatos should be scuffled with a horse implement to destroy weeds, choosing dry weather to do the work; and when the tops are high enough, lose no time in earthing them up with a moulding-plough, otherwise a good deal of damage may be done to the tops and tubers.

Cardoons.—Although this vegetable is not generally cultivated, it makes a nice addition to the list of culinary vegetables. The plants, if the seeds were sown at the proper time, should now be in a fit state for planting out in the trenches, prepared as for Celery, excepting that they may be a trifle wider and deeper. The plants may be set out at 18 inches apart. The plants having been raised in pots, should be turned out with care, and when the planting is finished, the whole should have a good application of water which has been warmed by exposure to the sun.

Peas.—Should the weather remain dry, afford water freely to the soil on both sides of the rows, using alternately with clean water some kind of liquid-manure, mulching the entire space between the rows, or only for a foot or so alongside the rows, with half-decayed manure. If water be plentiful, Peas should be afforded an occasional syringing. The rows of late Peas, before being earthed up, should be weeded or hoed, then afforded water on both sides, and soon afterwards the soil should be drawn up to the plants and sticks put to them. In dry weather mildew and thrips have to be guarded against, for they check the plants and cause them to pod too early, which makes it difficult to keep up a regular supply for table. In order to avoid this, afford water abundantly at the roots, alternated with manure-water. Copious syringings will help greatly to keep the plants free from thrips. The last sowing may consist of tall Marrowfat early varieties, sowing the seed in well-moistened trenches. This sowing will afford pods in October, provided they are not cut off or greatly checked by frosts. The drills or trenches for this sowing may be made a little deeper than usual.

Miscellaneous.—Make sowings at short intervals of time of Lettuce, Carrots, Radishes of the breakfast and Turnip-rooted varieties; of Spinach, Turnips, and Mustard-and-Cress.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Subtropicals.—The various species and varieties of the so-called subtropical plants impart an ornamental appearance to the flower garden and the dressed grounds surrounding a mansion if the sites of the beds are such as befit the plants, and the plants do not seem incongruous; and they are as admissible in a geometrical parterre as in the irregular flower garden, and in proximity to beds of herbaceous perennials as to those filled with the usual summer bedding plants, if only the position is appropriate. The aspect selected for them should be one with sufficient light to prevent the plants becoming drawn, at the same time affords shelter from the prevailing strong winds which would spoil their appearance. In preparing the beds, let good drainage be secured, and soil not less than 18 inches deep, consisting of rich loam two-thirds, and rough leaf-mould one-third. The surface of the bed should be so shaped that the centre rises gradually from the sides, and thus allows the plants to be seen to better advantage than in the case of a flat bed. Wigandias, large-leaved Solanums, Acacias lophantha, Ricinus, Abutilons, Funkias, Rhus. Cannas, Aralias, Melianthus major, variegated Maize, which last-named, if it be grown in pots, and these plunged in the soil, will keep its variegation perfectly; and Acer Negundo foliis variegata, grown in the same way, contrasts well with the darker foliage of the other plants. All subtropical plants should be thoroughly hardened-off before being planted out, and they require liberal feeding, and plenty of water when growing, especially those possessing large leaves, which, in a certain degree, prevent the rain from reaching the roots of the plants.

Begonias.—The fibrous and tuberous-rooted Begonias may now be safely bedded-out. These plants are easy of cultivation, providing their needs are well considered at the first, that is, the beds should be exposed to direct sunlight, be well drained, and consist of a moderately retentive soil. Should the staple be of a hungry nature, it is well to add leaf-mould, charred soil, and hot-bed manure, putting one wheel-barrow load of the latter per square yard of the soil, well mixing the whole with the staple, and after levelling and shaping the beds, make the whole moderately firm by trampling. If a bed consists of Begonias alone, the distance at which the plants will be set will depend on their size. If they are plants of this year, 9 inches will be sufficient; but two-year-old plants will require from 12 to 15 inches. The crown of a tuber should not be buried deeper than from 2 to 3 inches, and the soil must be pressed firmly round the ball of earth and roots. Having planted a bed, afford water liberally, and afterwards let the surface of the bed be kept somewhat loose with the Dutch-hoe. A slight sprinkling overhead with a fine-rose watering-pot after a hot, dry day refreshes the plants. When in full growth, Begonias may be afforded water rather freely. Where special colours in masses are required, seedlings are not to be relied upon, and the plants employed must be selected as regards habit, height, and character and colour of the blooms, but as a rule habit and shape and size of flower in improved strains go together. In beds of mixed colours one cannot go wrong in selecting the dwarfer seedlings, and these if they have been raised early in the year will now be showing the colour of their flowers. Effective beds are formed by planting the Begonias further apart than is stated, and planting a groundwork of Sedum acre and S. glaucum, and Saxifragra hypnoides, or they may themselves be used as a groundwork to taller plants with variegated foliage, the colours blending or forming an agreeable whole.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Codiæums and Dracænas.—The present is a very suitable time for the propagation of these plants in quantity for decorative purposes during the winter. Plants which have become too tall may be headed down, and the young part of the tops inserted in small pots, and these plunged in the propagating-frame. The stock of Dracænas may be further increased, if necessary, by cutting the stems of the plants from which the tops have been taken into pieces about 2 inches in length, and inserting these thickly in pans filled with sandy soil, taking care that they are not placed upside down, and keeping the tops of the cuttings level with the soil. When they have produced a shoot and made a sufficient number of roots, the cuttings should be potted into small pots, and subsequently into others of a larger size, and grown on until the plants form good tops. The propagation of Dracænas may also be effected by means of the fleshy rhizomes, commonly called "toes," which are frequently found near the base of the roots of old plants. These may be cut off and inserted singly in small pots, and treated similarly to the stem-cuttings. A position near the glass in a light house, with a stove temperature and an abundance of atmospheric moisture during the growing season, are essential to the production of highly-coloured Codiæums and Dracænas.

Miscellaneous.—The points may be pinched out of the shoots of Allamandas which are growing freely after being cut back; doing this increases the number of flower-shoots. Hardy and half-hardy annuals which are being grown in frames for conservatory decoration may, after being hardened by increased ventilation, be stood in the open air. Remove the flowers and flower-stems from zonal Pelargoniums which are being grown for autumn and winter flowering, and pinch the shoots occasionally, in order to produce bushiness. Show Pelargoniums should be stood in a sunny position out-of-doors after flowering, to ripen the growth and rest the plants. Afford only occasionally water during dry weather, and in rainy weather lay the plants on their sides.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

The Latest Vinery.—The Grapes will now be ready for thinning, and where Lady Downes, Alnwick Seedling, or Gros Colman comprise the sorts grown, very careful thinning will be needed. For late-keeping Grapes a much freer hand is desirable; crowded bunches are always bad keepers. The berries of Lady Downes and of Gros Colman are borne on short, stiff stalks, and they consequently need to be thinned severely, irrespective of late keeping, than such long-stalked berries as Black Hamburg. Alnwick Seedling is a fine mid-winter Grape, but the blooms do not always set regularly, and the final thinning of berries and of bunches of this variety may be deferred a short time. The work of tying down the laterals should precede the thinning, and no crowding of these must be allowed. Encourage rapid growth by closing the house early in the afternoon, and maintain a fair amount of warmth in the hot water-pipes at night. Remove all useless lateral growths once each week, pinching them back to within one joint whence they issue after the first stopping. If any of the old canes have grown unsightly, encourage a young rod from the base of the existing ones, allowing this to extend to about 8 or 9 feet before it is finally stopped. Vigorous Vines will furnish the roof with a new rod in two or three years. An unsatisfactory Vine can often be replaced by extending an adjoining one, and this is more satisfactory than planting a young Vine in an old border. In bad cases it may be advantageous to cut an old rod back to the height of the front trellis, in order to induce a satisfactory break. In this there is the sacrifice of a year's crop, but the practice often produces such an improvement that the loss is well repaid.

The Early Peach-house.—Fruits of the earliest Peaches and Nectarines having been gathered from the trees, let all the shoots which have borne fruits be removed so far as they can be spared, and tie-in those of the current season's growth, in order to cover the trellises without in the least crowding the new wood. Admit air abundantly by night and day, so as to keep the temperature low. Houses that are lightly built are better for being slightly shaded, either by syringing the glass with prepared summer-shading or whiting mixed thinly with milk. A double thickness of fish-netting drawn over the roof would serve the purpose as well, if not better; but anything affording much shade must be avoided. A slight amount of shade not only prevents a high temperature, but checks premature ripening of the wood, buds, and foliage, to which may be attributed much of the trouble caused in the winter by bud-dropping. Red-spider is much in evidence this summer, encouraged, no doubt, by the sudden access of temperature, and the daily syringing of the trees should not be relaxed, but rather more vigorously applied where spider is present, or irremedial damage will be done. The borders should have copious applications of water, especially such of them as are filled with young roots. A mulch to such borders is a great value in conserving the moisture in the soil and keeping it cool. Pot-trees having been cleared of their fruits may be plunged in the soil outdoors, in a partially shaded position at the first, as too much sunshine may cause them to drop their leaves early. Afford the soil in the pots a thick mulch of strawy litter, and water whenever the soil is found to be getting dry. A daily syringing morning and evening will keep these trees healthy and free from insects.

The Second Early Peach-house.—The fruits of Peaches Dr. Hogg, Bellegarde, Stirling Castle, Dymond, Royal George, A'Bec, and Hale's Early, now ripening generally, will, with careful ventilating and shading, be made to prolong the season of forced Peaches for some time longer. Let all fruits that are fit for table be plucked every morning, and do not neglect the daily syringing of the trees in sunny weather. It is advisable in syringing trees having ripening fruits upon them to do this early in the afternoon, so that the foliage and fruits may become dry before nightfall. The fruit of the Nectarine is more liable than that of the Peach to split if much wetted when ripening. The water used at this stage should be quite clear, as dirt cannot be removed from the skin of ripe fruits. Let the fruits be as much exposed to the sun as possible during the final swelling, or the colour will be poor, and flavour not of the best. The second early house is the better for having constant ventilation after this date. Suppress all superflnous laterals, and tie-in the shoots neatly as occasion may require; pinching back secondary growths to one leaf. Bare spaces in established trees can be furnished another season by inserting wood-buds in the branches at the present time, taking them from strong shoots on healthy trees. The methods adopted with Roses is suited to the budding of the Peach or Nectarine. It is only from the early-started trees in forcing-houses that such buds can now be obtained, and these buds should be inserted near the base of the most convenient branches, and always on the upper side of them. It is always well to put a label bearing the name of the variety on the budded branch. Seedling trees, if strong enough, may be budded, but not placing more than one variety on one tree.

THE APIARY.

By Expert.

Returning swarms.—When swarms are not desired, all queen cells should be removed immediately after the swarm has issued, and in the evening the bees may be returned in the usual way. Examine and make sure that all queens of this year are laying, if they are, encourage them to breed as many young bees as possible before ovipositing ceases for the season. Such will make the very best stocks for future work.

Ventilation.—If bees exhibit signs of distress by hanging out in very hot weather, give ventilation at the bottom of the hive by raising it up a little from the floor-board, lowering it again at night. Hives with sliding floors may have them withdrawn a little, or lowered at the front, during the hottest part of the day; entrances also should be enlarged as much as possible, and shaded if it can be conveniently done. Sometimes it becomes necessary to remove the wrappings of surplus boxes, and to slightly raise the roofs which cover them, in order to allow a current of air to play about the supers. It is, however, not often needful to take all these precautions, unless in exceptionally hot summers, when more care than usual is required, but a little extra attention at such times is well repaid.

GRAPES IN SURREY.—The *Surrey Magazine* for May, mentions that:—"Mr. Bennett, of Cobham, among other Surrey growers, produces Grapes of the first quality by scores of tons in a crystal-covered field, and worthy of special mention is the most remarkable Vine in Britain, as raised and grown by Mr. M. Davis, at Roehampton. Its seven main stems extend in the aggregate more than a quarter of a mile, and the Vine dwarfs beyond all comparison the famous old monarch at Hampton Court. It produced fruit for the royal table on the occasion of the Diamond Jubilee, and when the Vine was inspected by Paderewski, the great master was so charmed that he charmed the family of his guide in return by filling the gardener's cottage with melody on Miss Davis's piano—a performance of its kind that may be regarded as unique!"

WEDDING OF A WELL-KNOWN GARDENER.—On Wednesday, 14th inst., at St. George's, Hanover Square, the marriage took place of Mr. E. T. Gilman, for many years head gardener to the Earl of Shrewsbury and Talbot at Ingestre Hall, Staffordshire, and of late years in charge of the gardens at Alton Towers, Cheadle, and Miss E. Butters. The ceremony was largely attended by the friends of both parties, and the reception was held after the wedding by the kindness of Mrs. Alfred Morrison, at 26, Bruton Street. The happy pair received a large number of presents from their mutual friends, and they left for Brighton in the afternoon for the honeymoon.

EDITORIAL NOTICES.

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	June 19	Royal Agricultural Society's Show at Maidstone (5 days).
TUESDAY,	June 20	Royal Oxfordshire Horticultural Society's Show.
WEDNESDAY,	June 21	Rose Show at Shanklin, Isle of Wight.
FRIDAY,	June 23	—Royal Botanic Society, Lecture.
SATURDAY,	June 24	Windsor Rose and Horticultural Show. Royal Botanic Society, Meeting.

SALES.

WEDNESDAY,	June 21	Begonias, Palms, Greenhouse Plants, Japanese Lilies, &c., at Protheroe & Morris' Rooms.
FRIDAY,	June 23	Imported and Established Orchids at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period June 4 to June 10, 1899. Height above sea-level 24 feet.

1899. June 4 to June 10.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Temperature of the Air. At 9 A.M. Wet Bulb.	Temperature of the Air. Day. Highest.	Temperature of the Air. Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	Temperature of the Soil at 9 A.M. At 2-feet deep.	Temperature of the Soil at 9 A.M. At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 4	E.S.E.	71·4	60·9	80·5	50·0	..	62·5	58·2	53·1	41·1
Mon. 5	W.S.W.	71·8	59·8	82·7	49·9	...	63·6	58·9	53·5	41·9
Tues. 6	W.S.W.	69·9	63·5	79·8	51·2	...	64·9	59·7	53·9	43·0
Wed. 7	S.E.	70·0	60·8	75·9	50·0	...	63·4	59·9	54·8	41·6
Thu. 8	E.S.E.	56·2	49·8	62·8	49·0	...	62·5	59·9	54·6	47·0
Fri. 9	E.N.E.	55·1	48·6	58·9	48·5	...	61·8	59·7	54·9	47·1
Sat. 10	N.N.E.	56·7	50·5	67·8	50·9	...	62·1	59·7	55·2	43·4
Means...	...	64·4	56·3	72·6	50·0	Tot. ...	63·0	59·4	54·2	43·6

Remarks.—The weather during the week has been remarkable for cold, drying winds, mostly from the east. No rain has fallen since May 24.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—61·6°.

Actual Temperatures:—

London.—*June* 14 (12 p.m.): Max. 60°; Min. 45°.

Provinces.—*June* 14 (6 p.m.): Max. 62°, W. Ireland; Min. 52°, N.E England.

Fine; no rain.

Botanical Nomenclature.

The intricacies of botanical nomenclature are perplexing enough to experts, and in spite of conferences and congresses there are still many who prefer self-made law to any other. The attempt to secure uniformity of practice seems doomed to be futile; it is, therefore, not surprising that gardeners should feel that they too have a right to make use of terms in their own sense without regard to the authority of others. In most cases, as in certain more serious matters with which the public mind is concerned just now, the matters in contention are essentially trivial and relatively unimportant.

It is convenience rather than principle that is at stake in most of these questions of nomenclature. Provided that the meaning in which a particular term is used is clear alike to him who uses it, and to him to whom it is addressed, the actual term made use of is relatively unimportant, unless for historical purposes. Nevertheless, much confusion will be avoided if some sort of agreement can be come to, and hence, while we object to certain details, we welcome the efforts made by the Royal Horticultural Society (the second edition of whose *Rules for Judging* has just been published) and other bodies to give precision to certain terms for the guidance of judges and others.

Some schedule makers and many gardeners are great offenders in the way of nomenclature; and some judges, from whom we look for accuracy, are no better. In the *Rules for Judging*, even, we find such expressions as the "Brassica tribe," and that "all natural genera are kinds, and all variations within a genus are varieties. Peaches and Nectarines, and the Cabbage tribe are notable exceptions to this; black and white Grapes are also for exhibition allowed as distinct kinds." We are expressly told that these pronouncements are arbitrary, and devised for exhibition purposes, else we might have protested against a method of grouping which excludes *species* altogether, and is in itself very confusing to those who are accustomed to the ordinary rules of botanical classification. What must it be to those untrained in the work of defining and marshalling groups of facts and phenomena? Orders, families, genera, species, sections, tribes, varieties, kinds, sorts, and so forth, are treated in ordinary language, as if they were of equal value and legitimately interchangeable—we have daily experience of this. It is as if we confused continents, islands, archipelagos, countries, provinces, peninsulas, counties, and parishes, and took one for the other indiscriminately; or, as if we attached the same meaning to army-corps, brigades, regiments, squadrons, companies, and so forth.

It is curious that whilst the absurdity in these cases is apparent to everyone, in the divisions of the animal and vegetable kingdoms it is otherwise. This may, perhaps, arise from the difficulty or impossibility of framing a precise definition of the word "species." Could we have a fixed unit as a starting point, its divisions and multiples could be made definite also. But in natural productions there is no fixity, but only a relative degree of constancy. A "species" we may take to include all those individual plants which had a common origin from the same original parents. But who is to prove that this was the case? Who can be infallible in such a matter? Not even the youngest of us! As Asa Gray said, species are "judgments." The wider and deeper the knowledge of the judge, the more deference we pay to his judgment.

Illustrations, in this case, are better than definitions. Here, then, is one: the Grape-vine, which botanists know as Vitis vinifera, is a species; it is the species "vinifera" of the genus Vitis. It happens to be the only European species, and therefore confusion is not likely to occur. But there are numerous American species such as Vitis Labrusca, &c., very much like, but amply differing from the European species; consequently the American Vines and the European Vines are placed in one genus called Vitis. In like manner there are other genera nearly allied to Vitis, but differing from it, such are Cissus, Ampelopsis, Leea, &c. These genera in their turn are combined into one natural order, the Vitaceæ, all the members of which are allied one to the other by ties of blood-relationship, so that, starting with species, we have progressively higher and more comprehensive groups of genera, orders, sub-classes, classes, and so on.

It is, however, with the lower groups, the sub-divisions of a species, that gardeners are most concerned, and here it is that the trouble with such vaguely-defined words as "kinds," "sorts," and "varieties" comes in.

A species consists of an infinite number of individual plants, which all had, or, from their great resemblance and the circumstance that their characteristics are generally, but not invariably, reproduced in their offspring, are assumed to have had, a common origin. But when we come to scan the individuals comprising the species, we find considerable variation among them, just as there is in a family of human beings, the offspring of the same parents. And thus we get various degrees or grades of variation, which botanists note as sub-species, varieties, variations, forms, and so on in descending order, each group less comprehensive than its predecessor.

Take the case of the Grape-vine again: Vitis vinifera varies greatly, but we do not think that the variation is sufficiently important to justify the formation of a sub-species, but that is a matter of opinion. Of varieties there are two principal ones, those with black and those with white berries respectively, and of each of these there are innumerable minor variations — Black Hamburghs, Alicantes, Gros Colman, Muscat, and so forth. This subdivision is intelligible to any botanist, and is in conformity with the rules accepted by the Paris Botanical Congress, presided over by the late Alphonse de Candolle.

Now, what place shall we give to the word "kind?" Where does it come in, in the above grouping? We have certain rules for judging before us, and we find, as usual, considerable variation even in this matter. The significance attached to the same word by the late Mr. M. Dunn in the last communication he ever wrote to us only a day or two before his death (see *Gardeners' Chronicle*, May 20, 1899, p. 320), is at variance with that adopted by the Royal Horticultural Society. For our own parts we should, for garden purposes, affix the word "kind" or "sort" to any group below specific rank, which is nevertheless sufficiently distinct to enable us to apply a name to it; thus, we should call Black Hamburgh a kind, Alicante another kind of Grape, and so on; just as in the case of Roses, we should esteem General Jacqueminot to be a kind, and Souvenir de la Malmaison to be another kind; or, in the case of dogs, retrievers, pugs, terriers, collies, bull-dogs, would all be "kinds" of dogs. If this be admitted, the word "kind" would be the equivalent in the hierarchy of botanical rank with "variation." The grading would thus be:—

Species.
  Sub-species (= race, strain).
    Varieties.
      Variations (kinds, or sorts).
        Forms.

The term "form" applying to transitory variations of minimum degree. Other people would prefer to consider "kind" as the equivalent of species, and the Royal Horticultural Society rules make it the equivalent of a "natural genus."

That this, or any other arrangement, will satisfy all people is more than can be expected: but if flower-show societies put forth their own definitions and interpretations, the least that exhibitors and judges can do is to conform to them loyally at the time, and to endeavour, if necessary, to amend them on another occasion.

Pyrus coronaria, *fl.-pl.* (fig. 145). — The type species with large, delicate, rose-coloured flowers, is one of the latest of the ornamental Pears to produce its flowers. The flowers and the long-keeping fruits, of the size of a Greengage Plum, emit a delicious odour of violets, which can be detected at a considerable distance. Bechtel's variety, P. coronaria, flore-pleno, flowers, as does the type, whilst completely clothed with leaves, and possesses large, double rose-like, fragrant blossoms, which render it one of the most beautiful spring flowering trees known to us. We are indebted to the kindness of Mr. Gumbleton, Belgrove, Queenstown, for the material from which our artist prepared the woodcut.

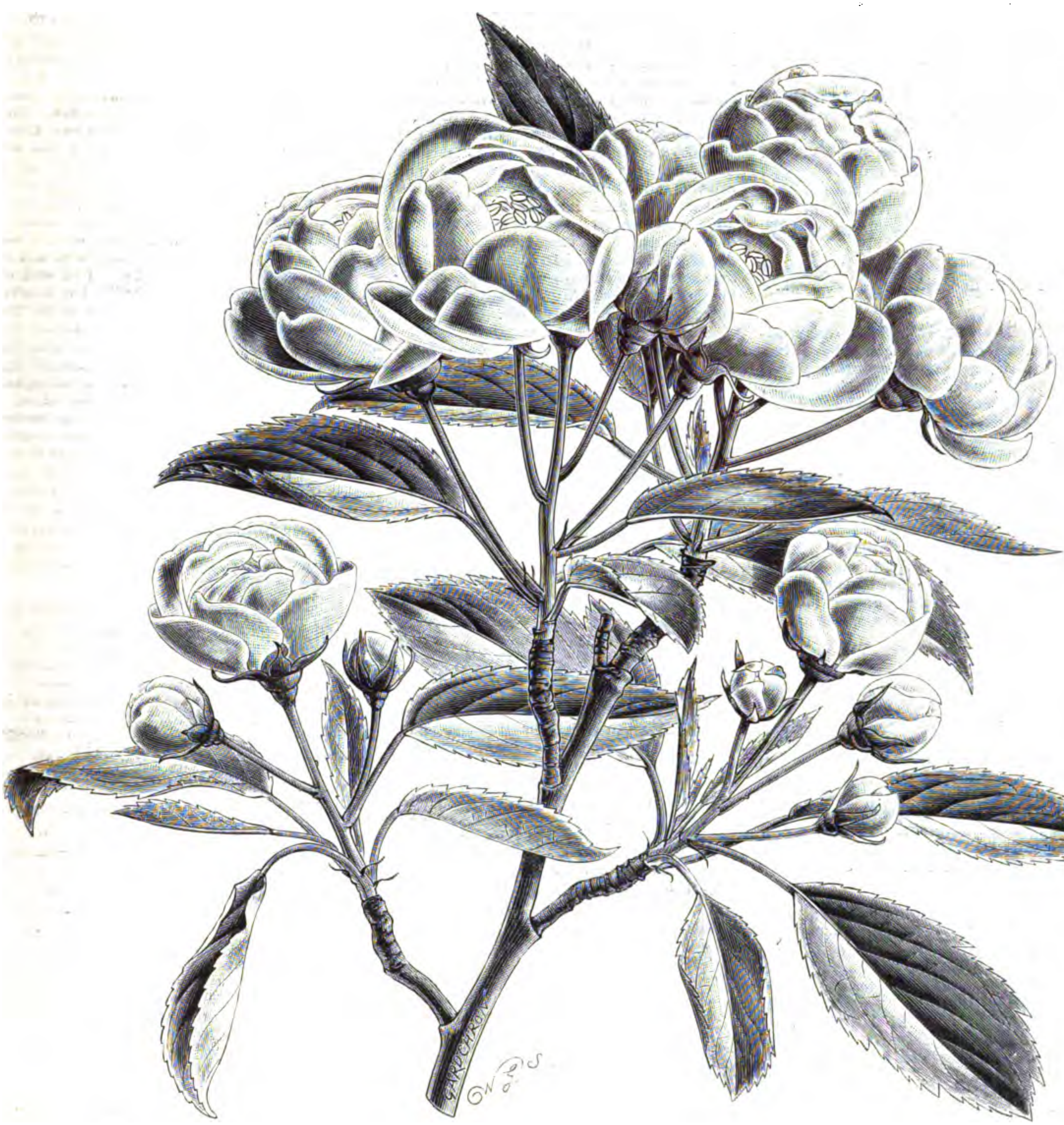


Fig. 145.—Pyrus coronaria, flore-pleno (Bechtel): colour of the flowers delicate rose.

Linnean Society.—June 1, 1899. Dr. A. Günther, F.R.S., President, in the Chair. Mr. W. B. Hemsley, F.R.S., F.L.S., exhibited a selection of High-level Plants from the collections formerly made by Sir Joseph Hooker, Dr. Thomson, General Sir R. Strachey, and more recently by Capt. Welby, Mr. and Mrs. Littledale, and Mr. Arnold Pike in Northern India, Thibet, and Mongolia, many of them from altitudes of 18,000 to 19,200 feet. A selection was also shown from the collections made in the Andes by Sir Martin Conway, Mr. Fitzgerald, Mr. Gosse, and Mr. Whymper, at various altitudes up to 18,500 feet. The principal points referred to were the small size of many of the plants, the protective woolly covering of others, and the general preponderance of the natural order Compositæ. On behalf of Mr. F. N. Williams, F.S.L., the Secretary read a paper on some Caryophyllaceæ from Sze-chuen, with a note on the recent Botanical exploration of that province.

The Dinner of the Royal Horticultural Society.—A large number of distinguished foreigners will be present at the Hybridisation Conference, and it is hoped that a large body of the Fellows will assemble to do them honour at the meetings and at the dinner on July 12, at the Hôtel Métropole. The hospitality shown to our countrymen abroad is a powerful inducement to us to do what we can on this occasion to reciprocate the kindness. Intending diners should communicate at once with the Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster.

"BOTANICAL MAGAZINE."—The plates in the June number are devoted to the illustration of the following plants :—

Begonia venosa, Skan; t. 7657. This is the species introduced by Mr. Christy, and exhibited by him at one of the exhibitions of the Royal Horticultural Society. It is remarkable for its leaves covered with silvery hairs, and for its large stipules, with marked reticulate venation.

Moræa sulphurea, Baker. A small species with linear leaves, and small terminal yellow flowers. It is a native of the Cape; t. 7658.

Kleinia pendula, D.C.; t. 7659. A species with tortuous fleshy stems, minute leaves, and terminal heads of crimson flowers. Native of Somaliland.

Chrysanthemum nipponicum, Watson, in *Gardeners' Chronicle*, 1897, vol. i., p. 46, and in 1898, vol. ii., p. 348, f. 104; t. 7660.

Iris Delavayi, Micheli; t. 7661. A native of Yunnan. The "falls" are purple, with white blotches.

KENFIELD, CANTERBURY.—The extensive collection of Conifers which was formed by the late Mr. R. E. THOMSON, and plantod some fifty years ago under the direction of the late Alderman MASTERS, of Canterbury, is probably the best and most varied in the county of Kent. Fine examples of Sequoia (Wellingtonia), Abies Mertensiana, A. firma, A. Alcockiana, the rare Piceas bracteata, amabilis, nobilis, concolor, &c., being represented by large specimens. Up to the time of Mr. THOMSON'S death, novelties were constantly being added to the collection. The earlier introductions of Japan Maples were very conspicuous. During the absence of the present owner in India, the pinetum became much overgrown, and the werk of opening out the best and rarest trees has been entrusted to Mr. GEORGE BUNYARD, of the Nurseries, Maidstone.

NATIONAL DAHLIA SOCIETY.—The committee of the above Society have made arrangements to hold a meeting at the Royal Aquarium, Westminster, on Tuesday, September 19, for the purpose of affording an additional opportunity for the exhibition of seedling Dahlias, and for the awarding of the Society's First-class Certificate to such of the new varieties exhibited as the committee may consider worthy. In order to give additional interest to this meeting, it is thought desirable to offer prizes in a few competitive classes, and contributions for this purpose are solicited. The Hon. Secretary is Mr. J. F. HUDSON, Gunnersbury House, Acton.

THE HORTICULTURAL COLLEGE, SWANLEY.—The Governing Body have pleasure in announcing that the Rose garden, which has been laid out under the superintendence of the Very Rev. The Dean of Rochester, who has promised to be present, will be opened by the Viscountess FALMOUTH, on Thursday, June 29, at 3 P.M., when the college, grounds, and house of residence for women students will be open for inspection.

FLOWERS IN SEASON.—Among some of the showiest, as a filling for flower-glasses, &c., are the flowers of the hardy Chrysanthemum maximum. The flowers are very large, and they are terminal on long stalks, and have pure white rays and a yellow disk; and the plant growing in gardens to a height of 6 feet, it forms an admirable back-row plant in a border of herbaceous perennials, or for dotting in the shrubbery. Mr. JOHN DAVIS, of Hoylake, Cheshire, who sends the blooms, informs us that the plant has been in flower since May 22, although generally the season in that part of the country is three weeks later than the average.

DR. GÜNTHER RITTER BECK VON MANNAGETTA has been appointed Professor of Botany in the German University of Prague.

STOCK-TAKING: MAY.—The delay experienced in the issue of the Trade and Navigation Returns for the month of May is amply condoned by the work recorded—by the increase of imports from all parts of the world, and the enhanced value of the exports thereto. The value of the May imports was £40,876,828, against £37,706,378 for May, 1898, a gain of £3,170,450. This gain extends over nearly all sections of the returns. In the food imports we find Wheat increased by 436,850 cwt., but the value decreased by £1,033,706. It may appear strange to "the foreigner," but the value of the 4-lb. loaf does not show a very downward tendency. Barley has given way, but Oats increased in quantity by 443,470 cwt., and £104,737; eggs went up by £69,071; butter, £194,596; rice rose £280,085; sugar of all descriptions increased by £152,530; hams and bacon fell off both in quantity and value; whilst cheese showed an increase represented by £78,245. In dutiable articles tea shows an enhanced import, the value rising by £109,021; coffee decreased in value; cocoa increased by £52,435; wine dropped £68,694. With the exception of rum, all spirits show an enhanced value. But here we may fitly give our usual condensed summary of imports, as follows :—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	37,706,378	40,876,828	+3,170,450
(A.) Articles of food and drink—duty free	14,420,133	14,395,844	—24,290
(B.) Articles of food & drink—dutiable	1,987,342	2,078,099	+90,757
Raw materials for textile manufactures	5,406,415	5,537,567	+131,152
Raw materials for sundry industries and manufactures	3,609,859	4,435,092	+825,233
(A.) Miscellaneous articles	1,008,643	1,186,984	+178,341
(B.) Parcel Post ...	110,127	87,187	—22,940

We should note that metals show an increase of £822,716; of this copper stands for £259,684, the quantity-column shows but little increase; the American ring is responsible for the rest. Of course, tin shows an increased value—£160,729; nil represents alteration in quantity as compared with May, 1898. Oils have gone up £204,054, the figures for petroleum showing an increase of £116,773—representing 7,053,786 gallons. In raw materials for textiles, cotton, Flax, silk, all show a reduction; whilst Hemp, Jute, wool show a rise. In other raw materials, a rise of £825,233 is shown; caoutchouc went up £185,124; gums, £32,797; wood and timber show a rise of £178,087; Clover and Grass-seeds have gone back, Flax or Linseed and Rape went up. The section relating to fruits, roots, and vegetables is, as usual, very interesting; our extracts are as under :—

IMPORTS.		1898.	1899.	Difference.
Fruits, raw :—				
Apples	bush.	97,400	127,422	+30,022
Cherries... ...	,,	10,385	33,751	+23,366
Grapes	,,	3,228	2,981	—247
Lemons	,,	150,593	164,219	+13,626
Oranges	,,	208,270	933,223	+724,953
Pears	,,	496	1,305	+809
Plums	,,	91	408	+317
Unenumerated...	,,	88,573	127,362	+38,789
Onions	,,	352,899	660,407	+308,068
Potatos	cwt.	1,055,256	1,014,681	—40,575
Vegetables, raw, unenumerated	value	£130,513	£136,600	+£6,087

Oranges seemed to "run over" from the vicinity of the Monument into every court and alley in the metropolis, "specks" being plentiful enough to sell at six for 1*d.*, and in proportion increased the danger to life and limb in the public streets. To close with the imports, it is satisfactory to record an increase on the five months amounting to £1,416,346; the figures for the past month being £198,403,349, as against £196,987,003 in May of last year. We pass now to a brief note on the

EXPORTS.

The increase here is £5,138,886, thus gained: the total for the month is £23,030,240; for May, 1898, £17,891,354, something like a rise. This is obtained, in part, as follows: new ships, not registered as British, foot up at £1,974,982; coal, coke, and fuel, £689,544; metals and articles manufactured therefrom, except machinery and ships, £844,810; machinery and mill-work, £218,617; raw materials, £724,342; yarn and textile fabrics advanced by £629,269. Here we may note that cotton piece goods rose £384,015; America taking largely, as also in the case of linens, which record again £56,933; all other articles, either manufactured or partly manufactured, have increased some £353,082, and here are included railway rolling stock, india-rubber goods, products of coal, £22,650; wool, in various conditions, £64,779; live animals were sent out to the value of £7,476; articles of food and drink, £34,979. But enough of the tale has been told to account for the increased activity in the British workshop and factory. The increase on the five months is placed at £11,447,244, the value for the five months just ended being £104,541,727, against £93,094,483 set against the corresponding term in 1898. To illustrate the thoroughness of our trade in the East, we make a note respecting the Chinese imports and exports. These are valued at 370,655,538 taels, to which the British dominions contribute 233,960,730 taels—over 60 per cent. As to the carrying trade of the Chinese Empire under foreign flags, Great Britain furnishes 80·74 per cent.; Germany, 7·28 per cent.; Russia, 0·81 per cent. These facts are worth remembering when discussion turns upon our position in that part of the globe.

"HARDY FRUITS FOR THE MIDLAND COUNTIES."—We have received a copy of Mr. A. H. PEARSON'S excellent paper on *Hardy Fruits for the Midland Counties*, which is now in its third edition. The information given was first published by the Nottinghamshire Horticultural Society in 1884, and has since been added to and brought up to date. Mr. PEARSON may be said to have successfully accomplished his undertaking, which was, "not to make a book, but rather to sum up as concisely as possible a few of the facts upon the subject in hand gathered during thirty years of work amongst fruit and fruit trees."

DEFRAUDING THE CHARITABLE.—Messrs. HURST & SON, seed merchants, write as follows :—"In February last we received a piteous appeal from Mr. WM. GADSBY, of 37, Denman Street, Leicester, on behalf of H. W. PARKER (formerly of Huntingdon), seedsman's shopman, who, with his wife and family, were represented to be in most distressed circumstances, and on February 6 we remitted 20*s*. On February 13, upon a further appeal, we remitted Mr. GADSBY an additional 20*s*. On May 14, CHARLOTTE PARKER advised us her brother, HENRY PARKER, had died that morning, after a great deal of suffering, leaving a wife (near her confinement), with several children, and without the means of paying for the funeral, and on May 16 a further remittance of 20*s*. was made, and acknowledged by C. PARKER on May 18. We are now assured that WM. GADSBY and H. W. PARKER are one and the same individual, and that the man H. W. PARKER is still living. We regret that we have been victimised by such false pretences, and with the object of preventing others becoming victims, ask you to kindly give publicity to this letter in your journal.

PLANT PORTRAITS.

BEGONIA, crested form, *Revue Horticole*, June 1.

CATANANCHE CŒRULEA, *Garden*, May 27.

COUNTESS DE TURENNE, hybrid Tea Rose (Bernaix), colour pink, *Rosen Zeitung*, May, 1899.

CEDRUS DEODARA NIVEA.

We owe to the kindness of the Earl of Annesley the following note, accompanied by a photograph, relating to Cedrus Deodara nivea (fig. 146):—"Cedrus Deodara nivea is very beautiful now, being nearly as white as its name applies. We have in the gardens here another Deodar, known as albo-spica, the young foliage of which comes out green, and only turns white as it completes its growth." *Annesley.*

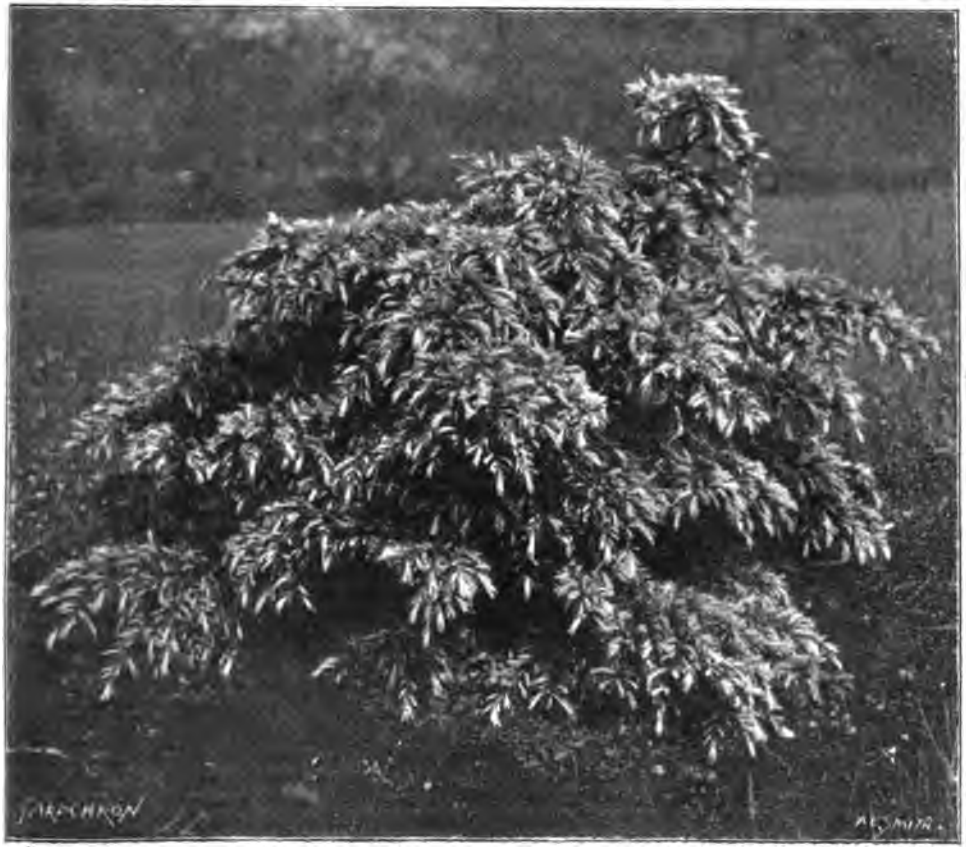


Fig. 146.—Lord Annesley's Cedrus Deodara, Growing at Castlewellan, Co. Down.

NOTICES OF BOOKS.

FACTS FOR FRUIT-GROWERS AND OTHER HORTICULTURISTS.

In the *Agricultural Year-Book of the United States Government*, which has just reached us, are some papers which are of considerable interest to the horticulturist generally. Such contributions as the one on insects which attack the tobacco-plant do not bear very much upon plant-culture in this country, but the article on the "Pruning of trees and other Plants," by William Saunders, contains many valuable observations. A few lines at the beginning, which strike as it were a note of warning, may very well be quoted:—"Plants left to Nature maintain a reciprocal action between the branches and the roots, and every branch and leaf removed must exert an influence either injurious or beneficial; therefore no one should remove a branch until satisfied of a reason for doing so, and foreseeing the influence and effects of such removal."

Mr. Saunders goes on to say that many fruit-growers think that most uniform and satisfactory crops are produced when little or no pruning is resorted to. Vicious and unnecessary pruning, he allows, brings about untold injuries, but he strongly brings out the errors of going to the opposite extreme, and of not pruning at all. To go into more detail, judicious thinning and arrest of unruly and misplaced shoots are to be commended, while making it part of the annual routine to visit an orchard to saw off branches and tops of shoots, without a special object in view, will soon diminish the crop of fruit.

When discussing the season for pruning, it is pointed out in the paper that when the operation is conducted in the early autumn, additional vigour is given to the branches retained. The reason advanced does not seem to be quite so accurate as the fact, according to the generally accepted ideas of the physiology of deciduous trees. It is stated that the improvement is due to the trees continuing "to absorb nutriment by their roots" during the winter. It is hardly necessary to recall the fact that it is the leaves that make the reserve food, taking carbon from the air, and utilising materials sent up by the roots. In winter these manufacturers are gone, and the flow of water from root to leaf has ceased. Even allowing, for argument sake, that the sap still rises into the bare stems, the earth, salts and water of which it is composed, would not be such "nutriment" as would increase the vigour of the branches.

A better explanation would appear to be that the legacy of food stored in the older branches has to be divided among a smaller family of younger ones, which it must be said is practically what Mr. Saunders maintains in the case of buds.

The "flow of sap," or perhaps here it would be better to say the supply of food, is always directed towards the tips of branches, and an accumulation takes place before the winter with the result that terminal buds are the larger ones. The same thing happens in spring with regard to the ends of shoots, and it is pointed out that accumulated food is lost by spring pruning. Perhaps, however, the idea that additions are sent up from the roots in winter may have led to the emphasising of the objection to the previously mentioned process.

Some advice based upon forty years' experience is given us as to the necessity of promptly removing immature wood that the frost may have killed, as this, it is said, is a common source of disease to fruit-trees.

Next, Mr. Saunders sets up the line, which runs:—"Prune in summer for fruit, and in winter for wood;" and proceeds to make an Aunt Sally of it. After considering the principle that checking growth induces the formation of flowers, upon which the first piece of the supposed good advice depends, he points out its uncertain application in the case of summer pruning, and gives a noteworthy example.

"If the growing shoots of an Apple or Pear tree are checked on their extension by removing a portion of their points, say, toward the latter part of June, the lower buds on the shoots will be forced into growth, thus forming numerous side branches, which have no immediate connection with fruiting-spurs, and which simply tend to a further thicket of twigs for removal in winter. But if the shoots are not checked in their extension until August, and the weather afterwards continues to be warm and dry, the probabilities are that the lower buds on these shoots will start into rather feeble side-growth, or short, spur-like shoots, which will ultimately furnish fruiting-buds. If, on the other hand, the season happens to be wet, and mild weather prevails until close to winter, these same side-shoots will lengthen into slender twigs, which will not thoroughly mature, and which will be of no use whatever. The difficulty in reaching successful results lies in the uncertainty as to the proper time to prune, because no two seasons are exactly alike, and also because trees vary in their vigour from year to year. Yet upon this uncertain, indefinite, and constantly experimental procedure is founded the advice, 'Prune in summer for fruit.'"

Of the second half of the rule, short work is made. Mr. Saunders cannot question, of course, that additional vigour is given to fewer buds that remain after winter-pruning, but he very much doubts whether a greater aggregate of wood results, and concludes that to consider that winter-pruning as a practical rule increases the quantity of timber is a fallacy.

Perhaps the most important point in the article is the favour with which the writer of it regards "pinching" and "disbudding." He says that these are the most rational modes of directing the growth of plants, and if rigidly practised, they would do away with the necessity for the removal of branches of any size at any time. The inconsistency of allowing a tree to produce wood in summer, only to have it removed in winter, is brought forcibly before us. The balance of growth, which it is so important not to disturb, remains unaltered, and there is much less labour required to rub off a bud in spring than to cut off a branch in autumn.

After this, we are given hints as to the pruning of roots, and the necessary curtailing of branches at the time of transplanting, as well as instructions for training a hedge. Even the pruning of street trees comes in for attention, and the ideal shape for withstanding sudden bursts of wind is discussed. This is naturally acquired by very few deciduous trees, and is practically that of a Fir, with central stem and leading shoots. Training for positions in the streets should be begun early in the nursery.

Finally, details are entered into with regard to special cases of interest to the fruit-grower. Particular instructions are forthcoming in connection with the culture of the Vine, the method advised being one on which a new leading shoot is taken up annually from the base of the plant, and the old canes removed when they have seen three or four years' service.

Another contributor, Mr. M. B. Waite, gives the result of researches upon the "Pollination of Pomaceous Fruits." It is found that, as is common with other plants, the Apple and Pear have a strong tendency to self-sterility, which means that pollen from one flower does not readily "set" another when both are situated upon the same tree; as also specimens of the same horticultural variation are formed from grafts that originally came from a single tree, and are practically one plant, the same remarks apply. On the other hand, distinct varieties that can be traced back to different seeds cross freely.

The size and shape of fruit following such cross-fertilisation are found to be greatly improved, whereas self-pollinated Pears are practically seedless, and of small proportions.

It must, however, be borne in mind that the sterility is dependent somewhat upon climate, weather, and condition of the trees, but even where varieties are usually self-fertile, the largest fruits are obtained by cross-pollination. Apples are even more markedly self-sterile than Pears, whereas Quinces do not follow this rule at all.

To ensure cross-fertilisation in orchards, the following suggestions are made:—

1. Several varieties should be used, and even if one kind is desired, every third tree in every third or fourth row should be of a different one.

2. When large series of trees have blossomed well for several years and have failed to produce a crop of fruit without any apparent reason, graft in some other varieties.

3. Be sure that plenty of bees are in the neighbourhood, or at least within two or three miles, and endeavour to favour them by selecting sheltered situations, and erecting wind-breaks.

Other information, useful to the fruit-grower, is to be gained from an article upon "Utilising Surplus Fruits," while much suggestive and readable matter for gardeners is included under such titles as "Birds as Weed Destroyers," "Insects Injurious to Peas and Beans," and "Improvement of Plants by Selection," not to mention "Grass-seed and its Impurities," and several others dealing with soils. *Wilfred Mark Webb.*

THE FLORA OF CHESHIRE.—By the late Lord de Tabley. Edited by Spencer Moore, with a biographical notice of the author by Sir Mountstuart Grant Duff (Longmans).

BOTANISTS had long to wait for the *Flora of Kent*, which we noticed in a recent issue, and a similar exercise of patience has been imposed upon them in the case of the *Cheshire Flora*. Those who knew the accomplished author of the last-named work will experience no surprise at the delay in publication. Rather will they feel their obligations to Lady Leighton, to whose pious care it is that we owe this valuable addition to the botanical history of our country. This lady, in arranging her brother's papers, lighted on two MSS. relating to the Cheshire flora, of which the latest in date, completed some twenty-five years since, forms the substance of the present volume. The editorship has been entrusted to Mr. Spencer Moore, and carefully and well has he executed his trust.

The biographical notice supplied by Sir Mountstuart Grant Duff is a charming piece of writing, and the introduction of some of Mr. Warren's poetry, is a delightful innovation in a technical flora. Let us hasten to say, it is only tolerable when as good in quality as the samples here provided. For the Hon. Leicester Warren, to use the name by which he was best known, was a poet by nature, and a man of culture and wide sympathies. "Studies in verse," novels, treatises on book-plates and on Greek coinage give evidence of this.

In botany he was not attracted by the merely sensuous side of the subject, for Brambles and Docks were two of the genera that he most affected, and no inconsiderable amount of enthusiasm must be expended to study these plants as Warren did.

A short account is given of the county of Cheshire, and of the districts into which it may be divided from a botanical point of view. To estimate the value of this necessitates a personal acquaintance with the county. In the list of "Persons concerned in the past with Cheshire Botany," we find the name of Henry Shepherd, the curator of the Liverpool Botanic Garden, and the first in this country to raise Ferns from their spores. More recent contributors to the *Cheshire Flora* are E. M. Baillie, C. Wolley Dod, Leo Grindon, and many others. The Flora itself is enriched with numerous notes, so that the volume will not only be indispensable to Cheshire botanists, but a valuable book of reference to those concerned with British plants in general. A map and a good index render it all the more serviceable.

HOME CORRESPONDENCE.

LEEKS.—One of the things I have found out here is that the Welshmen in this primitive place do not regard the Leek as a national plant. It certainly is not usually grown in gardens, and I have seen it grown properly only in one garden —where the head gardener is an Englishman. *E. W. B., Clynnog.*

THE PARADISE STOCK.—Your correspondent, "D. T. F.," seems to assume that the employment of the Paradise stock is of quite recent origin. Certainly, even in the '50's, not much was heard about it in gardens; but old John Rogers, whose *Fruit Cultivator* is one of the best of the old fruit books, refers to the Paradise stock as being in common use some time anterior to the date of publication, viz., 1834, and that was sixty-five years ago. Referring to this stock, he says:—"By all accounts, it is of Dutch origin, but first found its way into England through travel." It has, however, been long ago proved by Mr. Grey, of the Fulham nursery, that the French is inferior to the Dutch Paradise stock, especially for espaliers. That the French Paradise stock is a more than dwarfing stock—that *is*, a cramping and almost a strangling stock, we have long known. It therefore seems evident that the stock then described as the Dutch Paradise is identical with that now known, and so abundantly used, as the English or broad-leaved Paradise. The author mentions that these stocks can be obtained from abroad (as now) with great facility; also that they do best on a somewhat moist rather than a dry soil. Of the long list of varieties of Apples given in the book, many of which have gone out of cultivation, several are recommended as best suited for diverse forms of culture, when worked on the Paradise stock. All this goes to show that its employment in nurseries must have been well known and common, doubtless, from 75 to 80 years since. Our horticultural records are, in these matters, none too clear, as then we had no regular horticultural press. Now it is but needful for the horticultural historian to turn up the columns of the *Gardeners' Chronicle*, or its contemporaries, and information on almost everything will be found. *A. D.*

ELŒOCARPUS CYANEUS.—The pleasing, small, pure white, bell-shaped, deeply fringed flowers of this Australian shrub are produced in racemes that arise in the axils of the leaves. The flowers are succeeded by blue-coloured berries about the size of those of the Sloe. In its native country it grows to a height of 15 feet, and in this country it forms an excellent subject for planting in borders in large conservatories. A plant is now in flower here at the Botanic Gardens, Liverpool. *J. G.*

ADVERTISEMENTS.—In the *Gardeners' Chronicle* of June 10, there is an advertisement: "Wanted, a head gardener for a large garden, with a man and a boy under him." And I assume from the amount of assistance given, that he has about three acres of garden ground, with or without a cow, and I should hope not much glass. He wants a hard worker, which most gardeners have to be; but the sting is at the end of his advertisement, where he says that he does not want a suburban or southern counties gardener. I think, that had he said he wanted an honest God-fearing man, who knew his business, he would have got what he wanted, and concealed his ignorance. Southern counties is a comprehensive word, and our Scotch friends "come down south" to get the finishing touch to their education, and we are pleased to see them, and moreover in the southern counties horticulture is more advanced than in any part of the world. The day of parochialism is over, north-south-east and west are amalgamated. We are all members of one great Empire, all necessary with our respective good and bad qualities alike, for the maintenance of our common heritage, so that any comparisons shows a want of comprehension of things as they now exist. *R. M., Newbury.*

MILDEW ON VINES.—Respecting the discussion on the subject of destroying mildew on Vines, I should have some hesitation in using boiling-water on Vines in the early stage of their growth, although I have no reason to doubt Mr. Mallett's statement. My experience of the use of hot water as an insecticide is, that it is quite safe to syringe with at about 130° in the destruction of all insects, but not beyond; as, having tested it at that degree of heat on forced Roses they came out all right. In using water at 150° to 160° I found that all the young growths and tender foliage turned black. I would not advise even water at 130° to be used on tender greenhouse plants or Ferns, but rather a few degrees less, which will be found equally effective, and not injurious to the plants. The following, a simple recipe, I have found an unfailing remedy for mildew on Roses in pots, and it would most likely be equally as efficient on Vines, and that without any injury accruing to the foliage. Mix thoroughly 1 lb. of sulphur vivum or black sulphur with 1 lb. of soft-soap, and when thoroughly dissolved paint the hot-water pipes with the mixture, and I guarantee every vestige of mildew will disappear after two or three applications, and prove far more effective than a good many of the remedies for mildew now on the market. *J. D. Godwin.*

—— In reply to "R. M." in last week's issue of the *Gardeners' Chronicle*, p. 383, I may state that the Grapes were in two stages when the hot-water remedy was applied; those in one house were about the size of Marrowfat Peas, those in the other were smaller, scarcely larger than seeds of Sweet Peas. *Geo. B. Mallett.*

RHUBARB AS SPINACH.—The *Gardeners' Chronicle* for May 27 is at hand this morning, and the note on "Rhubarb Leaves as a Vegetable," prompts me to say to you that instances have been known here where their use as "Greens" has caused fatal results, owing to the excess of oxalic acid. A horticultural friend told me many years ago that he had raised many seedlings, some of which (I assume that the usual part was cooked in the usual way), caused vomiting as certainly as ipecacuanha. *Robert Manning, Sec., Mass. Hort. S*

A QUESTION.—Thinking of a few of some of the garden plants of fifty years ago, that were more worthy of our attention than those grown now-a-days, but which seem lost to gardens and unknown on enquiry of the trade, where is the old double black-flowered Delphinium, just the colour of the black Hyacinth? Where also are the old double Wallflowers, brown, ginger, black, purple, and yellow coloured? They have not been seen by me for many years. The beautiful yellow Violet, not the plant called now Pansy-like, but the shape of an ordinary Violet, sent out by the late Mr. J. Veitch about forty-five years ago. Where also are the Hyacinths double purple-green tips, double red-green tips, and double white-green tips? I never see them offered by anyone in the trade now. I used to grow them; the red and the white I used to obtain of the late Mr. John Sutton. A few days ago that and the purple of the Rev. J. Tyso, and many other things too numerous to name just now from memory. Also the "Midsummer Men and Maidens" [Sedum Telephium, a common plant. ED.]. I believe it produces milk [No], like an Euphorbia, but I have never been able to get it. *J. C.*

TEMPERANCE DRINKS FOR THE HARVEST FIELD.—The Church of England Temperance Society has, for some time, been endeavouring to popularise the use of cheap, easily-made drinks for use in the harvest-field, hop-garden, workshop, and laundry. For this purpose the executive has taken Stall No. 59 at the Royal Agricultural Shows Maidstone, from June 17 to 23, and at the South Eastern Show, Tunbridge Wells, from July 19 to 21. Here we hope to make simple drinks suitable for the table, the field, or the workshop, and to give recipes and samples to visitors. We do not claim to be able to revolutionise our drinking customs by this means, but we do claim to show how thirst-quenching, nourishing, and exceedingly palatable beverages may be made with little more trouble than tea or coffee, at an expenditure of 2*d.* to 4*d.* per gallon, and from articles easily obtainable. May we, through your columns, invite your readers to call at our stall to see and taste for themselves, or to write to me for the recipes which we shall be most happy to send? *George B. Charles, Clerical Secretary, Canterbury Diocesan, C. E. T. S., 94, Oakfield Road, Croydon, June* 10.

KILLING AMERICAN BLIGHT, ETC., BY FIRE.—I should feel pleased if you would make known in your valuable *Gardeners' Chronicle*, the means I have adopted to destroy, not only the American-blight, but also their eggs, however numerous they may be, without in the least injuring the Apple-trees. About forty years ago I planted several Blenheim Apple-trees, and since that time several young ones of the same sort, on all of which these pests have been gaining ground; and although I have tried all the means I could hear of, or read of, I could only check their ravages for a time. The trees have been sadly disfigured, and some branches literally killed. But a week ago I thought of some new plan (to me), most easy; although hot and severe, it was perfectly powerful to exterminate them. I hired a painter's lamp for 3*d.* only, charged it with benzoline (2*d.* per pint), and when lighted, having the flame reduced to a minimum by the screw. I had simply to direct the flame about 3 inches distant from the nests of the blight; in a second the woolly appearance melted away, and the creatures fell to the ground dead and dried up, also the eggs destroyed. The heat was only for an instant, so that the trees, and even the small twigs, were perfectly safe. I am very glad to name this for the benefit of all growers of these splendid Apples. *Wm. Moody Bell.*

CONTINENTAL NOVELTIES.

ROSE MADAME WAGRAM COMTESSE DE TURENNE.

THIS is a novelty raised by M. Bernaix in 1894, and ranked by him as a Tea Rose, although in describing it he says it is "a big Tea Rose with H. P. blood in it." It is certainly a large Rose, of globular shape, very double, and with broad petals. The flower-bud is egg-shaped, has great substance, and surmounts an erect stiff stalk. The bloom has a certain resemblance to Merveille de Lyon, and measures from 4½ to 5½ inches in diameter, opens freely, and keeps a long time in good condition as well on the plant as when cut. The colour is a fresh, silky salmon-pink, changing to flesh-pink and china rose, with a silvery tinge over the entire flower, and the edges of the petals appear white.

The plant is very vigorous, bushy in habit, but not compact, and possesses more of the character of a hybrid Tea than of a Tea Rose. The name will have to be shortened to Madame Wagram, being altogether too long for present day use. The novelty is a good Rose for exhibiting, and for the florist's work; but before the public will take to it, it must like other novelties be frequently exhibited. A coloured plate of the variety appears in the May issue of the *Rosen-Zeitung.*

DOUBLE ZONAL PELARGONIUM GLOIRE DE FRANCE.

This is probably one of M. Victor Lemoine's raising, and is certainly one of the most attractive decorative varieties I have seen. The central colour is bright orange-carmine, and the well-formed petals are distinctly edged with white. It is of a shade of colour that appears to be very popular in these days, and Mr. Arthur Turner, who called my attention to it at the Royal Nursery, Slough, said they had used this variety largely for decorative purposes both at Ascot and Windsor. The trusses, borne well above the foliage, are large and symmetrical, and the leaves darkly zonate. I cannot so far find this variety in any list under this name, but those who grow zonal Pelargoniums for decorative purposes will do well to add it to their collections. *R. D.*

NEW INVENTIONS.

WE have received a sample of several very simple devices for rendering more convenient the work of securing plants to stakes and to walls. These "S. M." Fasteners are made of soft, consequently very pliable lead, with holes at each end. By using ordinary nails, these convenient tree-fasteners should last a considerable time. Clips are made of the same material, and are intended for use instead of any tying material, for securing plants to stakes. The Leeds Orchid Company, who manufacture the above articles, also send a sample of a permanent shading, in a condition ready for use, and of their "Ivorine" plant labels, with indelible ink for writing thereon. For many purposes these ivory-coloured labels would be most useful, as they possess the quality of neatness in a marked degree.

THE "ABOL" SYRINGE.

New insecticides and appliances for their distribution abound at the present day, rendering the choice of one or the other exceedingly difficult to the inexperienced. We have lately received from Messrs. E. A. White, Limited, Hop and Fruit-growers, Paddock Wood, Kent, a handy, well-constructed brass syringe, intended to economically and efficiently distribute as a fine spray clean water, or liquid insecticides, over fruit-trees and bushes, &c. It is fitted with a drip-preventer, and also a detachable elbow-joint, to enable the undersides of the foliage to be more easily reached by the operator than is possible with an ordinary syringe when the plants operated upon are of low growth; as, for example, Strawberry-plants, Gooseberry, Currant, and Rose-bushes.

Obituary.

THOMAS J. SALTMARSH.—The death of Mr. Thomas Joseph Saltmarsh, the head of the firm of Messrs. Saltmarsh & Son, the Nurseries, Chelmsford, took place on the 2nd inst. at the age of seventy-two. He had been in failing health for some time past, and in consequence was rarely seen at the meetings of the Royal Horticultural Society, although a member of the Fruit Committee. In the latter part of the week, previous to his death, Mr. Saltmarsh was seized with a paralytic fit, and passed away without recovering consciousness. He leaves a widow, but no children. The nurseries, up to the death of Mr. Saltmarsh, had been in the possession of three generations of the family. They were founded in the latter part of last century, by the grandfather of Mr. T. J. Saltmarsh, who died in 1829, when the father of the latter, Mr. Joseph Saltmarsh, succeeded, and carried on the business until 1872, when the son just deceased became manager, and succeeded to the estate. Mr. T. J. Saltmarsh in early life was sent to the Pineapple Place Nurseries, in the Edgware Road, where he remained for two years, and then returned to Chelmsford, to assist his father in the business. The firm has enjoyed for years an excellent county reputation, and a general collection of nursery stuff was grown by them. The rearing of Mulberries was at one time a leading specialty. For some years a great deal of exhibiting was done; fine specimens of show and zonal Pelargoniums, Dahlias, Asters, Chrysanthemums, fruit, &c., being grown for the purpose. In reference to the last-named, it will be remembered that two fine and popular kitchen Apples, the Queen, an October variety, and Chelmsford Wonder, December to March, both of which received first-class certificates from the Royal Horticultural Society. He was at one time particularly successful with Chrysanthemums as an exhibitor, winning many medals and also several silver cups. He was a supporter of several of the special floricultural societies, and a frequent attendant at their exhibitions. At Moulsham, a suburb of Chelmsford, in which the home nursery is situated, Mr. Saltmarsh was an active public man, and will be greatly missed. He filled the post of vicar's churchwarden at Moulsford, and warmly supported all educational efforts. As a judge at flower-shows he was in much request; of modest and retiring habits, there was an entire absence of self-assertion. In all that he undertook the ruling motive with him was the best interests of those about him. He was interred in the borough cemetery, Chelmsford, on the 7th inst., amid many manifestations of respect and regret.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 13.—The first ordinary meeting of the Committees, following upon the Temple Show, was held in the Drill Hall, Westminster, on Tuesday last, and was attended by an exhibition of considerable extent. In the first place, there was a fine display of Orchids, and there were awarded to novelties of this description one First-class Certificate, four Botanical Certificates, and six Awards of Merit.

Then there were many grand exhibits of hardy flowers; some of the visitors ventured the remark that it was quite an "Iris" day, there being very extensive collections of German and Spanish Irises from Messrs. JAS. VEITCH & SONS, Messrs. WALLACE & Co., Mr. PRITCHARD, and others. But the meeting was equally remarkable for Carnations, and the Floral Committee was engaged more than usually long in adjudging the merits of novelties, most of which were Carnations. The Floral Committee's awards were eight Awards of Merit to Carnations, two to Roses, one to a Rhododendron, and one to a variety of Lupinus arboreus. The Fruit Committee made no award to a novelty.

In the afternoon there were elected to the Society upwards of eighty new Fellows; and Mr. Meyer, of Exeter, read a paper upon "Rock Gardens, Ponds, and Rivulets in Gardens," in which practical suggestions were given upon the formation of rockeries, with a view to producing the most natural results. The choice of plants, and the planting of them, were also subjects that were very fully explained.

Among the visitors to the Drill Hall was Mr. Arderne, of Cape Town, South Africa, from whose remarkable garden there we have frequently been favoured with interesting photographs, several of which have been reproduced in these pages. Mr. Arderne was invited to a seat upon the Floral Committee.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. H. M. Arderne (South Africa), S. A. de Graaff, Chas. T. Druery, H. B. May, R. Dean, W. Howe, J. Jennings, Jas. Hudson, C. J. Salter, J. D. Pawle, W. Bain, Chas. Jeffries, Jas Walker, George Gordon, Chas. E. Shea, Jas. H. Barr, E. T. Cook, Herbert J. Cutbush, Ed. Beckett, Harry Turner, C. Blick, E. H. Jenkins, Geo. Paul, H. J. Jones, H. Selfe-Leonard, Ed. Mawley, and J. Fraser.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, made a large display of trusses of Rhododendron blooms in an exhibit that included a few choice alpine plants and bunches of garden varieties of Roses and Sweet Briars. The bold trusses of Rhododendron exhibited a number of varieties of bright and distinct colours. Messrs. PAUL also showed blooms of a very pretty hybrid Bourbon Rose named J. B. M. Camm. It is exceedingly pretty in form, and pink and rose in colour. Rhododendron Fortunei Boadicea is a large handsome variety with purple flowers, with throat spotted and marked with brown (Silver Banksian Medal).

Messrs. GEO. JACKMAN & SON, Woking Nursery, Surrey, contributed a most gay exhibit of hardy flowers, in which single and double-flowered varieties of Pyrethrum roseum were conspicuous. There were fine bunches of the yellow-flowered Lupinus arboreus, Tritonia caulescens, T. Tucki, Irises of sorts, Senecio Doronicum, rich orange colour; also a number of bunches of choice varieties of Lord Penzance's hybrid Sweet Briars, Lord Penzance and Lady Penzance, the former orange and flesh coloured, and the latter rich rose with orange centre, are amongst the earliest and most distinct. Other large and handsome varieties were Amy Robsart, Julia Mannering, Green Mantle, Lucy Bertram, Jeannie Deans, Blush China, &c. The firm also staged a small lot of flowers of hardy herbaceous perennials and hardy deciduous shrubs. Of the former, we noticed Aster alpinus superbus, with lilac-coloured rays and a yellow disc; Sidalcea malvæflora, a plant with compact short spikes, furnished with numerous crimson flowers, which open in long succession; Papaver Blush Queen, flowers single, of a dull pink tint, with a red-purple patch at the bottom of the flower; Betonica grandiflora, &c. Of shrubs, there were Hedysarum multijugum, Baptisia australis, and Weigela Eon Rathke, a dark crimson flower (Bronze Banksian Medal).

Messrs. R. Wallace & Co., Kilnfield Gardens, Colchester, had a group of choice hardy plants and flowers, varieties of Lilium Thunbergianum, such as atro-sanguineum, marmoratum, and testaceum, were shown in pots. There were cut flowers of Lilium rubellum, Anthericum liliastrum major, plants of Cypripedium spectabile, many sorts of Iris, Brodiæa capitata (blue), B. Howellii lilacina, B. coccinea, B. laxa (blue), Ixiolirion Pallasii, and the deepest coloured blooms of Incarvillea Delavayi we have yet seen. A few of the smaller flowered Calochorti, including amœnus albus, pulchellus, &c., were included (Silver Banksian Medal).

Messrs. James Veitch & Sons, Royal Exotic Nurseries, Chelsea, made a very remarkable exhibit of varieties of German Irises, and although there is nothing particularly new to notice in the collection, it was a fine exhibit of the choicest varieties obtainable in the section, in addition to being one of the most attractive exhibits in the hall. It would serve no useful purpose to mention a number of these varieties that have been described in the trade catalogues, but those of the Pallida section, and such others as Duc de Brabant, Prince of Orange, Shakespeare, Sans Souci, flavescens, A. F. Barron, Madame Chereau, and others were some of those giving the greatest effect. A dozen or so varieties of the Spanish Iris were also very pretty, and a number of bunches of Ixias from pot plants splendidly illustrated the beauty of these Cape bulbous flowers when well and strongly grown (Silver Banksian Medal).

This firm also showed some plants of Pharus guianeensis albo-striata, a variety differing from the type in having considerable variegation in the leaves. This, like the type, has been introduced, and it will likely become a popular decorative plant. Also blooming a number of varieties of their Javanico-jasminiflorum hybrids of Rhododendron, so remarkable for the beautiful colours they present, and for their handsome appearance.

Mr. H. T. Martin, gr. to Lord Leigh, Stoneleigh Abbey, Kenilworth, showed a group of rather small but pretty plants of Abutilon Sawitzii. This pretty variegated plant was the subject of a note by Mr. Martin on p. 276 of the *Gardeners' Chronicle* for May 6.

Messrs. F. Sander & Co., St. Albans, had a group of foliage-plants, in which were included most of the new species frequently exhibited by this firm, most of which have been described in these pages. Acalypha hispida, Dracæna Sanderiana, Linospadix Micholitzii, Panax Mastersianus, Juniperus Sanderi, Mikania Sanderi, Cyperus fertilis, Dipladenia Sanderi, and several varieties of Caladiums, were noticed (Silver Banksian Medal).

Mr. F. Cant, Braiswick Nursery, Colchester, staged a large quantity of "Garden Roses," Lord Penzance and other Briars; yellow and other Scotch Roses, common China, in several varieties; and such Roses as the Austrian Copper, Mignonette, R. rugosa fimbriata, a pale flesh-flower, with prettily-fringed petals of large size, and semi-double — it blooms the entire summer; Crimson Rambler, the new Climbers named after the Three Graces, viz., Aglaia, pale yellow-rose, with a nice small bud, and the fragrance of the Tea-Rose; Thalia has minute semi-double white flowers, with a yellow centre. Both of these varieties are of rampant growth, good for covering arbors, making garlands, festoons, &c. Euphrosyne, the sister-Rose to these two, but which was not shown, has semi-double, bright pink flowers, bringing, as all three do, a long succession of blooms. Dawson is a bright, pink-coloured, new climbing Rose. Other Roses were Marie Pavie, white, with blush centre, and double-flowered; Gustave Regis, beautiful in the bud, which in that stage is reddish-orange; Queen Mab, salmony-orange; R. rugosa var. blanc double de Coulert, a large semi-double white flower of large size when fully expanded; R. inermis, a rose-pink, Perle de Panachées; Mme. Geo. Bruant, white, nice in bud; Marquis of Salisbury, Cooling's single-flowered Crimson Bedder, Armosa (Hermosa ?), a full, compact Rose, light pink in tint; Geo. Pernet, Lavette Messing, a flower beautiful in bud, or when half opened, coppery-pink and orange; Olga de Würtemberg, a big, showy, deep crimson flower, the plant very vigorous; R. rugosa, Souvenir de Pierre Leperdrieux, a big flower of a taking shade of purple (Silver Gilt Flora Medal).

Messrs. G. Cooling & Sons, nurserymen, Bath, showed the new garden Rose Purity, white, with the faintest blush tint in the centre of the unopened bud, and beautiful in that condition (Award of Merit). They showed Cooling's Yellow Noisette, a flower also admirable in the bud state, and apparently a capital bouquet or button-hole Rose (Award of Merit).

Messrs. Young & Sons, nurseryman, Windmill Lane, Cheshunt, showed plants of a white Viola, having flowers of good shape, and possessing a small yellow eye.

Messrs. H. Cannell & Co. exhibited a large group, consisting of the finest varieties of Canna indica. We noted Burbank, one of the finest yellow varieties; Comte de Bouchaud, yellow, regularly dotted with crimson; Duchess of York and Florence Vaughan, similar; Provincial, scarlet; Madame Crozy, &c. The spikes were generally of large size, flowers well developed, and foliage plentiful (Silver Gilt Flora Medal).

Mr. B. Ladhams, The Nurseries, Shirley, near Southampton, showed an extensive assortment of hardy herbaceous perennials as cut bloom, such as we have been accustomed to observe in fine condition and great variety from this nursery for several years past. Pinks in variety were prominent, and the variety Lizzie Duval, a flower of soft purplish-rose was very noticeable; Pyrethrum roseum in many varieties were likewise noticeable for brilliancy of colour; also Dictamnus Fraxinella, Muscari, various; Hemerocallis Dumortieri, a flower deep yellow within, and orange-tinted without, &c.

Messrs. Barr & Sons, King Street, Covent Garden, and Long Ditton, showed a large collection of cut blooms of hardy plants, especially noticeable being Papaver Salmon Queen, Pæonia herbacea, Iris in much variety, Kniphofia Tucki, Alliums, Ixias, &c. (Silver Banksian Medal).

Martin R. Smith, Esq., The Warren, Hayes, Kent (gr., Mr. C. Blick), showed a group of Carnations, receiving a Silver-gilt Medal. Almost the entire collection consisted of Souvenir de la Malmaison, in its varieties of crimson, flesh, blush, pink of different shades, white, crimson, and scarlet; and being grown with one flower per plant they were fine of size. Of ordinary Carnations an Award of Merit was made to Don Carlos, a fancy, with a yellow-coloured ground and crimson edge and stripes, more Picotee than Carnation.

Mr. John Russell, Richmond Nurseries, exhibited a group of tree Ivies with green, silvery, and variously variegated foliage of various heights, including many in standard form. These tree Ivies seem to be finding employment in a variety of ways in the garden, and as they afford a desirable variation in form, height, and colour to the floral occupants of beds and borders, their use is likely to spread (Silver Banksian Medal).

A glorious exhibit of hardy flowers was made by Mr. Maurice Pritchard, Christchurch, Hants, the various bunches of flowers indicating excellent cultivation. Spanish Iris Leander, orange-yellow coloured; and the variety Beauty of Haarlem, with others, were capital. Ixias, Pyrethrums, Lilium umbellatum erectum, Lupinus arboreus, Thalictrum aquilegifolium, Dictamnus Fraxinella albus, &c., were noticed, and fine sprays of Tropæolum Leichtlini, an excellent species for the rockery (Silver Banksian Medal).

Messrs. T. S. Ware, Ltd., Hale Farm Nurseries, Tottenham, also showed a grand exhibit of choice hardy flowers. Of these there were noticed Pyrethrums, Tritonias, Dianthus cæsius, Armeria cephalotes rubra, some of the best blooms of the new Lilium rubellum we have yet seen, the flowers being very large and of pretty form and colour; Geums, Incarvillea Delavayi, Hieracium villosum, &c. (Silver Flora Medal).

Mr. C. Turner, Royal Nurseries, Slough, showed blooms of some choice border Carnations, several of which gained Awards of Merit.

From Mr. F. W. Moore, Glasnevin Botanic Gardens, Dublin, came flowering sprays of Fremontia californica, and Pæonia Emodi, the latter with single, white flowers.

Messrs. Carter & Co., High Holborn, London, contributed a group of well-flowered Gloxinias in pots.

Mr. Mark Fenwick, Meldon Park, Morpeth, showed a device in wire for raising plants in pots, and by means of supporting the plant immediately above a tin dish provided in the stand, and which is filled with water, the plant is protected from slugs and other creeping plant pests.

British Ferns were shown in an extensive group from Mr. H. B. May, Dyson's Road Nursery, Upper Edmonton. This collection, which is the first exhibit composed exclusively of British species we have seen from this establishment, included as many as 140 species and varieties. The genera Athyrium and Lastrea accounted for a large number of the specimens, and the wonderful variations caused much attraction. Mr. May also showed a number of plants of a pretty orange-yellow-flowered Tropæolum, known as Sunlight (Silver Flora Medal).

Ochna multiflora was shown in fruit by J. T. Bennett-Poë, Esq., Holmwood, Cheshunt (gr., Mr. Downes). This is a stove evergreen, that produces yellow flowers, followed by a globular receptacle similar to a Strawberry in shape and colour. On the surface of each highly-coloured receptacle are produced several black seeds, of great contrast to the receptacle.

AWARDS.

Carnation Galileo.—A creamy yellow ground flower, of large size and good form, with deep purple edge. From Mr. C. Turner (Award of Merit).

Carnation Falcon.—A large yellow-coloured flower with slight shades of brown. From Mr. C. Turner (Award of Merit).

Carnation Galatea.—A yellow flower with narrow edge of bright red colour, a very pretty variety, of good form. From Mr. C. Turner (Award of Merit).

Carnation Agnes Sorel.—A handsome and refined flower of large size, colour deep maroon. From Mr. C. Turner (Award of Merit).

Carnation Goldfinch.—A pure canary yellow-coloured border Carnation of much merit. From Mr. C. Turner (Award of Merit).

Carnation Ossian.—A tri-coloured flower flaked variously with maroon and rose on deep purple ground. From Mr. C. Turner (Award of Merit).

Carnation Don Carlos.—A fine yellow-ground border Carnation with narrow rose edging, a very fine flower of pleasing form. From Martin R. Smith, Esq. (Award of Merit).

Carnation Lady Rose.—A Malmaison Carnation of peculiar shade of pink, distinct and attractive. From Martin R. Smith, Esq. (Award of Merit).

Carnation Florizel. — Another distinct variety of the Malmaison type, colour rosy carmine. From Martin R. Smith, Esq. (Award of Merit).

Lupinus arboreus albus "Snow Queen."—A white flowered variety of this well-known and popular Lupin. It should be a most effective plant. From Mr. B. Ladhams, Shirley Nurseries, Southampton (Award of Merit).

Rhododendron Essex Scarlet. — A richly-coloured flower, spotted upon the upper segments. From Messrs. Paul & Son (Award of Merit).

Rose Purity.—A garden Rose of moderate size, very pretty in bud and when more developed, slightly fragrant and pure white in colour. From Geo. Cooling & Son, Bath (Award of Merit).

Rose, Cooling's Yellow Noisette.—The flowers are a pretty shade of yellow, very attractive, but rather thin; as the flower becomes expanded; the foliage is large, smooth, and olive-green in colour. From Geo. Cooling & Son, Bath (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshay, H. Little, J. Gabriel, A. H. Smee, F. Sander, H. J. Chapman, A. Outram, E. Ashworth, T. W. Bond, J. Colman, J. Gurney Fowler, F. Mason, W. H. Young, H. T. Pitt, S. Courtauld; and by invitation, Hugh Dixson, of Sumner Hill, New South Wales.

There was an exceptionally fine show of Orchids, the grand group staged by Messrs. Jas. Veitch & Sons, Chelsea, and which secured the Award of a Gold Medal, being one of the most remarkable exhibits of the year. Prominent among the many showy hybrids in it were several fine forms of Lælio-Cattleya × Aphrodite and L.-C. × Canhamiana, two of the handsomest Orchids of the season, and supplying interesting variations. Among the newer hybrids not previously awarded certificates were Lælio-Cattleya × Lucilia and Epidendrum × Langleyense (Pseud-epidendrum × Wallisi), both of which secured Awards of Merit. Among the forms of Lælio-Cattleya × Aphrodite, the variety 'alba' with white sepals and petals, was very handsome; Lælio-Cattleya × Wellsiana albida, L.-C. × Hippolyta, forms of Epidendrum × O'Brienianum, of varied colour; E. × elegantulum, and its yellow variety 'luteum'; Masdevallia × Curlei, Cattleya × Schroderiana, Epiphronitis × Veitchi, the charming Spathoglottis × aureo-Veillardi, Lælia × Latona, a good show of Disa × Veitchi, Phalænopsis × Ludde-violacea, &c.; while among the species and varieties were noted a fine set of Lælia purpurata, Cattleya Mossiæ, C. Mendeli, a grand pan of Masdevallia Veitchiana grandiflora, Sobralia macrantha alba; good examples of Trichopilia crispa marginata now become very rare; Phaius bicolor purpurea, Miltonia Phalænopsis, M. Roezli, and M. vexillaria, Angræcum modestum, Cœlogyne Dayana, and numerous Oncidiums and Odontoglossums.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), staged an interesting group, which showed the wide variation in Cattleya Mendeli, viz., C. M. alba, a charming white flower with a slight blush tint; C. M. Nellie Wigan, a still more beautiful white form with pale rose tinge on the lip; and C. M. Model, a dark form, with rich, ruby-red front to the lip. The forms of Miltonia vexillaria, too, were equally interesting, and ranged from the white M. v. alba to the noble M. v. Memoria G. D. Owen, with its dark mask of rich claret-colour on the lip (Cultural Commendation). Also in the group were a series of fine varieties of Cattleya Mossiæ, the best form of C. M. Reineckiana being among them. Some good Cypripedium Curtisii, C. × Gertrude Hollington; a nice specimen of Epidendrum atropurpureum; good Lælia purpurata, Odontoglossum × elegantius, &c. (Silver-gilt Flora Medal).

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), was awarded a Silver Banksian Medal for a group of Odontoglossum crispum, remarkable not only for the fine quality of the flowers, but also for their remarkable culture, evidence of which was especially given by one fine plump plant, bearing a large seed-capsule on the last year's bulb, while the one since perfected bore two strong flower-spikes. Among the finest were O. crispum "White Empress," and O. c. "Princess May," both noble white flowers, the latter tinted rose.

J. Bradshaw, Esq., The Grange, Southgate (gr., Mr. Whiffen), secured a Silver Banksian Medal for an effective group, in which the fine forms of large-flowered Cattleyas were remarkable. Cattleya Mossiæ "Admiral Bradshaw" was a very handsome form; C. M. "Mrs. J. Bradshaw," a noble flower, very rich in colour and fine in shape; C. M. alba and C. M. Reineckiana, two good whites. Also noteworthy were the pure white Cattleya intermedia alba, C. Mendeli "Venus," a chastely beautiful form; Lælio-Cattleya × Aphrodite, some very good Odontoglossum crispum and Lælia purpurata; Cattleya labiata Warneri, Dendrobium Jamesianum, Epidendrum vitellinum, Lycaste Deppei, &c.

Messrs. Hugh Low & Co., Enfield, staged a good group, principally composed of their grand strain of Cattleya Mossiæ, the darker varieties of which were very richly coloured, one having a labellum which seemed to imitate Cattleya Hardyana. The forms of C. Mendeli were equally good, C. M. Lowiæ being a lovely white variety. Present also were good Odontoglossum crispum, Aërides Houllettianum, Epidendrum prismatocarpum, Lælia flava, and other showy species (Silver Banksian Medal).

Messrs. Stanley-Mobbs & Ashton, Southgate, were awarded a Silver Banksian Medal for a pretty group, in which were good Cattleya Mossiæ, C. M. Mrs. C. H. Firling being very fine in form and colour. Also included were good varieties of Lælia tenebrosa, Cattleya Schilleriana, Odontoglossums, Oncidiums, &c.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr., Mr. Davis), showed Lælia purpurata "Rex," a very fine flower; Lælio-Cattleya × Aphrodite, Glebelands variety, one of the best coloured forms yet shown; C. Mossiæ, Glebelands variety, resembling Reineckiana, but with a bluish tint on the lip, and other Cattleyas.

Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. Wm. Murray), showed Lælio-Cattleya C. G. Roebling, Cookson's variety (C. Gaskelliana × L. purpurata), a showy, pale rose flower, with purplish-mauve front to the lip. W. P. Burkinshaw, Esq., Hessle, Hull (gr., Mr. Barker), showed

Lælio-Cattleya × Canhamiana, var. Amelia, a very fine rose-coloured flower, with velvety ruby-red lip.

Baron Sir H. Schroder, The Dell, Staines (gr., Mr. H. Ballantine), showed Phalænopsis × John Seden (amabilis ♀, Luddemanniana ♂), with pretty rose-coloured, densely spotted flowers.

Mr. R. D. Leech, The Gardens, Wood Hall, Dulwich, secured a Cultural Commendation for a large and finely flowered Epidendrum Wallisii. Messrs. Jas. McBean & Sons, Cooksbridge, showed Cattleya Mendeli Protheroeana, a very beautiful white flower, with slight rose mark on the lip; the flower finely formed, and the lip closely crimped at the edge. Mr. W. Bolton, Wilderspool, Warrington, showed Cattleya Mendeli Blue Queen, a very pretty, light form, with a decided blue tint on the lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), showed Lælia tenebrosa Pittiana, a very distinct light-coloured form; Zygopetalum citrinum, and Cattleya Forbesii. H. F. Simonds, Esq., Woodthorpe, Beckenham (gr., Mr. G. E. Day), showed Lælia purpurata Simondsii, a very large flower, with fine claret-purple lip. F. W. Moore, Esq., Director of the Botanic Gardens, Glasnevin, Dublin, sent Eulophia guineensis and Epidendrum porphyreum.

R. G. Fletcher, Esq., Mount Harry, Brighton, showed Odontoglossum × Adrianæ Florence Fletcher, a large and finely-spotted flower; and O. c. Brighton Beauty, a rose-tinted form. Mr. T. Rochford, Broxbourne, again showed his Odontoglossum × Adrianæ Rochfordianum, with two strong spikes (Cultural Commendation). G. W. Bird, Esq., Manor House, West Wickham (gr., Mr. Redden, showed Odontoglossum × Andersonianum Mrs. G. Bird, O. crispum Margaret Bird, and O. c. Catherine Bird, all good varieties and distinct. T. B. Haywood, Esq., Woodhatch, Reigate (gr., Mr. C. J. Salter), sent Odontoglossum crispum, Woodhatch variety, a form of O. c. guttatum.

Messrs. F. Sander & Co, St. Albans, showed a small group of Orchids, in which the most remarkable were a fine and large-flowered Lælio-Cattleya × Gottoiana, and the very handsome L.-C. × Ingrami superba (L. Dayana × C. aurea), the flower large, and the lip of an intensely deep claret-purple.

AWARDS.

Odontoglossum × *Adrianæ Ashworth'anum* from Elijah Ashworth, Esq, Harefield Hall, Wilmslow (gr., Mr. Holbrook). Flower large, and with broad segments, cream-white, densely spotted with light brown; lip white, crimped, fringed, and spotted (First-class Certificate).

Award of Merit.

Cattleya Mossiæ Victoria, from J. Gurney-Fowler, Esq., Glebelands, South Woodford (gr., Mr. J. Davis). Flowers very large and finely formed, white, with a delicate reticulation of light purple on the broad petals, the centre of the lip being bright yellow, with a few reddish markings.

Cattleya Eldorado, Glebelands var., from J. Gurney-Fowler, Esq. Flower bright rose coloured; front of the lip dark claret-crimson, tube orange; flower very fragrant.

Cattleya Mossiæ albescens, from Sir Frederick Wigan, Bart. gr., Mr. W. H. Young), resembling C. M. Wagneri, but with an almost imperceptible blush tint.

Odontoglossum × *Coradinei Crawshayanum*, from De B. Crawshay, Esq. (gr., Mr. S. Cooke). Flowers of the typical form, but larger; bright yellow, with large brown blotches.

Lælio-Cattleya × *Lucilia* (C. Dowiana ♂, L.-C. × Schilleriana ♀), from Messrs. Jas. Veitch & Sons. Flowers cream-white; the petals slightly tipped with purple. Lip yellow at the base, changing to cream-white towards the margin, the front portion veined purple.

Epidendrum × *Langleyense* (Pseud-epidendrum ♂, Wallisii ♀), from Messrs. Jas. Veitch & Sons. A singular cross with the scarlet-lipped E. pseud-epidendrum, which it resembles in form. Sepals and petals yellow; lip orange, closely streaked with purple around the callus.

Botanical Certificates.

Bartholina pectinata, from Leopold de Rothschild, Esq., Gunnersbury (gr., Mr. J. Hudson). A singular Cape terrestrial Orchid, with reniform, fleshy leaves, and curious pale blue, laciniated flowers.

Eria extinctoria, from Sir Fred. Wigan, Bart. (gr., Mr. H. Young). A pigmy among Orchids, its slender stems bearing whitish flowers, rising from very small clustered pseudo-bulbs.

Bulbophyllum nutans, from A. H. Smee, Esq., Carshalton (gr., Mr. W. E. Humphreys). A singular species, with nodding racemes of rather large, purplish flowers, with slender petals and a purple lip.

Bulbophyllum modestum, from A. H. Smee, Esq. A small species, with cream-white flowers.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. George Bunyard, E. Shaw Blaker, Jas. H. Veitch, A. H. Pearson, A. Dean, S. Mortimer, J. W. Bates, Geo. Wythes, H. Balderson, James Smith, and S. Norman.

Collection of Vegetables for the Sherwood Cup Competition.—Lord Aldenham, Aldenham House, Elstree (gr., Mr. E. Beckett), exhibited one of the best collections of vegetables ever observed at this part of the season; especially excellent being Cos and Cabbage Lettuces. Cabbages, Cauliflowers, Globe Artichokes, Victoria Rhubarb, very stout stalks; Potatos, viz., Snowdrop, Sharpe's Victor, Mona's Pride, and Windsor Castle; Holborn Model Leek, of enormous size, and excellently blanched; Early Gem and Long Forcing Carrots; Peas Thos. Laxton and Early Morn; Crimson Ball Egyptian Beet of this season's growth; excellent Vegetable-Marrows, Pen-y-Byd, and others; Tomatos, red and yellow varieties; Cucumbers, French Beans, new Turnips, and Broad and French Beans. No other entry was made in this competition.

Lord Foley, Ruxley Lodge, Esher (gr., Mr. Miller), was awarded a Bronze Banksian Medal for a collection of varieties of Melons.

A Silver Banksian Medal was awarded to Mr. S. Mortimer, Swiss Nursery, Rowledge, Farnham, for twelve Melons of the variety Hero of Lockinge, medium-sized, well-netted examples.

F. C. Stoop, Esq., Westall, Byfleet (gr., Mr. G. Carpenter), showed a quantity of Purslane, a herb used as salad, and once common in gardens, but now rarely grown in this country. Botanically, it is Portulacca sativa.

Messrs. Harrison & Sons, nursery and seedsmen, Leicester, showed a fine late Broccoli (six), with a whitish curd, and named "Leicester Late." It has a head well protected by the short leaves, and the merit of being undoubtedly late.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

June 8.—There were present on this occasion, Messrs. G. Shorland Ball, chairman; G. W. Law-Schofield, vice-chairman; R. Johnson, C. Parker (new member), J. Cypher J. Robson, W. Duckworth (new member), W. Thompson, Dr. Hodgkinson, and P. Weathers (hon. sec.).

This was the first meeting of the Society's third year of existence, and it may not be out of place here to remark that during the short time the Society has been working it has done an immense amount of work, and certainly created a greater interest amongst the Lancashire amateurs than hitherto prevailed.

A Gold Medal was offered last year for the member of the Society who gained the highest number of points during the year for merit; and at the last meeting it was found that John Leemann, Esq., of Heaton Mersey (gr., Mr. Edge), was the fortunate winner of this Award. Thos. Statter, Esq., of Whitefield (gr., Mr. Johnson), being only a few points short, and therefore a strong 2nd. There is no doubt that encouragement of this description tends to make an amateur take an interest and pride in his collection, and I have no doubt there will be a strong competition again in the season 1899—1900 for the coveted honours. The Society starts on the third year of its career with a balance in hand of over £50, and several valuable assets.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr., Mr. Rogers), showed Cattleya Mendeli, Wrigley's var., a pleasing Cattleya of a soft tone of colour, with an exceedingly pale, almost white lip, and a throat of a citron-yellow tint (an Award of Merit). Cypripedium Gowerianum magnificum came from the same exhibitor, and was given a First-class Certificate.

Messrs. Charlesworth & Co., Bradford, had a superb form of Cattleya Reineckiana, which was awarded a First-class Certificate; a very pretty C. Mossiæ, named Princess, was passed; and Stanhopea tigrina, Charlesworth's var., a very gorgeous form of this fine old Orchid, was given an Award of Merit.

John Leemann, Esq., Heaton Mersey (gr., Mr. Edge), staged a handsome and valuable lot of plants, the most notable of which was Lælio-Cattleya × Canhamiana, var. "Duke of York," a lovely flower, of fine proportions and great brilliancy of tints, which was unanimously admired by the whole of the Committee, and which was awarded a First-class Certificate; and the Society giving instructions that a painting be made of the flower and it be put on record. L.-C. × Iolanthe var. grandiflora received an Award of Merit. A plant of L.-C. × Arnoldiana received an Award of Merit. A beautiful form of Odontoglossum Pescatorei called album received a First-class Certificate. A Silver-gilt Medal being awarded for the group.

Thos. Statter, Esq., Stand Hall, Whitefield, exhibited a fine form of Lælia purpurata, named Statteriana; but an objection was entered against this name, as it is said to be precisely the same as one shown in London under the name of L. p. Annie Louise. The plant was thereupon given a First-class Certificate under the latter name.

Richard Ashworth, Esq., Newchurch (gr., Mr. Pidsley), exhibited Lælio-Cattleya × Canhamiana, which obtained an Award of Merit, as did also Lælia majalis from the same exhibitor.

G. Shorland Ball, Esq., Wilmslow (gr., Mr. Gibbons), showed Cypripedium Lawrenceanum var. Hyeanum, which has already been certificated; a magnificent C. callosum var. Sanderæ, and whether there may or may not be varieties of this albino, that brought before the committee was superior to anything previously seen by them, and a First-class Certificate was unanimously awarded, the plant to be painted for record.

Mr. A. J. Keeling sent a few pretty varieties of Cattleya Mendeli and C. Mossiæ, and a supposed natural hybrid Cattleya between C. Mossiæ and C. speciosissima, the exhibitor obtaining a Vote of Thanks.

W. G. Groves, Esq., Windermere (gr., Mr. Robert Shaw), sent three meritorious plants in a fine Odontoglossum Wilckeanum (First-class Certificate); O. Alexandræ "Groves' var.," a flower of size and substance, but not quite round, and the petals heavily spotted, a distinct feature of the flower being the beautiful fringing of the segments (Award of Merit); Phalænopsis grandiflora from the same collection received an Award of Merit. W. Duckworth, Esq., Hexton (gr., Mr. Tindall), showed a fine white Cattleya Mossiæ. Mr. John Robson, Altrincham, staged a plant of Odontoglossum hystrix, very light in its colouring. Mr. J. Cypher, Nurseryman, Cheltenham, had a few good forms of Cattleya Mossiæ and Cattleya Mendeli. Messrs. Heath & Son staged various forms of Cattleyas. *P. W.*

THE YORKSHIRE GALA.

June 14, 15, 16.—The Horticultural Show was opened on Wednesday under most auspicious circumstances. The entries were as numerous as usual, and in almost all the classes there was keen competition. The general effect of the Exhibition was most satisfactory, and in the case of individual classes, each was of much interest. The groups arranged for effect were put up in capital style, and the quality of the plants was high. Orchids were numerous, and very choice. Stove and greenhouse plants were represented by large specimens full of flower.

Immediately upon entering the tent, one was struck with the excellence of the arrangements; a broad walk was banked on one side by a magnificent exhibit from Messrs. Fisher, Son, & Sibray, Handsworth. This group, beautifully undulated with an irregular edging, was composed at one end of a fine collection of Rhododendrons full of flower; the centre portion being of Acers in every form and variety, Bamboos, Spiræas, Euonymus, Standard Ivies, choice Coniferæ. Adjoining these was a grand collection of Crotons and Aralias, above which were suspended pitcher-plants in baskets; and again a large exhibit of Cattleyas, Cypripediums, and Odontoglossums.

On the opposite side of the entrance, Messrs. W. Cutbush & Sons, Highgate, had a large and varied exhibit of clipped Yews in fantastic shapes. Adjoining these, the same firm had a large display of Carnations with Bamboos and Rhododendrons; at their back, a fine mound of Richardia Elliotiana, edged with Saxifraga pyramidalis, and Ferns, imparting a neat finish.

There were large-sized Crotons and Palms. The fruit was generally good, and the Peaches and Nectarines of good colour. Strawberries were ripe and of large size. There were many fine collections of cut flowers of herbaceous plants.

Stove and Greenhouse Plants.

The end of this entrance was devoted to the stove and greenhouse plants with immense Palms overhead. Here Mr. J. Cypher, Cheltenham, showed in his usually successful manner, being 1st for twelve stove or greenhouse plants in bloom, and having Erica Cavendishi, Erica ventricosa, E. magnifica, large and full of flower; Clerodendron Balfourianum, Anthurium Scherzerianum, Bougainvillea Sanderiana, Ampelopsis macrantha rosea, Azalea Souvenir de Prince Albert, &c. The 2nd prize was awarded to Mr. W. Vause. Mr. Cypher was 1st also for six stove or greenhouse plants in which were large plants of Bougainvillea Sanderiana, Franciscea eximia, and Ericas, full of flower.

For three plants Mr. Cypher was also to the fore.

Orchids.

The Orchids were very numerous, and much competition was observable. For a table of Orchids, 10 feet by 4 feet, where cut flowers were also admitted, Mr. J. Cypher was placed 1st for a beautifully light arrangement, in which Bamboos, Dendrobiums, and Oncidiums were well intermixed at the back, and the centre and front was composed of Cattleyas Mossiæ and Mendeli, &c. Lælia purpurata, L. tenebrosa, Odontoglossum vexillarium, Epiphronitis Veitchi, and Cypripediums. Mr. J. Robson, Altrincham, was a good 2nd, having Oncidiums, Sobralias, Epidendrum prismatocarpum, Odontoglossum crispum in quantities, Anguloa Clowesii, Cypripedium bellatulum, and others, the whole edged with Ferns.

For ten Orchids Mr. Cypher was again 1st, with Odontoglossum vexillarium, with twelve spikes; Epidendrum vitellinum majus, with twenty-four spikes; Lælia tenebrosa, L. purpurata, Oncidium sarcodes, Cattleya Mossiæ, C. Warneri, &c. Mr. J. Robson was 2nd, and showed a very large specimen of Oncidium macranthum.

Mr. Cypher was again 1st for six Orchids, being followed by Mr. W. P. Burkenshaw.

For six Orchids, new or rare plants, not made up, Mr. T. Statter, Whitefield, Manchester, was 1st, with choice plants of Lælio-Cattleya × Phœbe, C. Mendeli albanensis, Cypripedium callosum Sanderæ, Lælia purpurata Statteriana, and others.

For three new or rare Orchids, Mr. Burkenshaw was 1st. For a single Orchid, Mrs. Tetley, Leeds, was 1st, with Aërides Fieldingi, carrying five spikes.

Messrs. B. S. Williams & Son, Holloway, had a fine display of Cattleyas, Lælias, Odontoglossums, &c; and Lælio-Cattleya Edouard André, Aërides expansum leonis, Cymbidium Lowi, Oncidium macranthum and Lælia purpurata, Williamsii, and a large mass of Utricularia montana were very prominent.

Messrs. Charlesworth & Co., Bradford, had a nice collection of plants, in which Thunia Marshalliana, Oncidium macranthum, Cymbidium Lowi, Lælia tenebrosa, in fine colour and form, Oncidium hastatum, Odontoglossum Vuylstekeanum, C. Reineckiana, L.-C. radiata and Thunia Veitchi were well represented.

Messrs. J. Cowan & Co., Liverpool, had a capital exhibit, in which Venda Parishi was noticed, among choice Cattleyas, Lælias, and Odontoglossums.

Messrs. J. Veitch & Sons, Chelsea, had a small but choice collection of hybrids—Lælio-Cattleya Eudora and L.-C. Eudora alba, L.-C. Canhamiana, L.-C. Wellsiana albida, C. Mossiæ excellens, C. Schrœderiana, and L.-C. Zephrya. Spathoglottis aureo-Viellardi was also in this collection.

Florists' Flowers.

A large tent devoted to Fuchsias and Pelargoniums, was full of colour, many of the plants being of excellent quality, large in size, and wonderfully well bloomed.

For twelve Show Pelargoniums, Mr. T. J. Hingston was well 1st with magnificent plants, just 4 feet in diameter, almost flat, and densely covered with flowers.

For six Show Pelargoniums, Mr. Tetley was 1st with Kingston Beauty, Magpie, Painted Lady, Madame Richard, and Madame de Desmoulin, as his best varieties; Mr. Hingston was 1st for three plants.

For a group of not fewer than eight fancy Pelargoniums, Mrs. Tetley was 1st, with splendid plants; the same exhibitor being also 1st for twelve, six, and three zonal Nosegay Pelargoniums, and for nine plants of double-flowered Pelargoniums.

The Ivy-leaf section of Pelargoniums was not good.

A magnificent display of Calceolarias was staged by Messrs. Clibran, Manchester, some 200 dwarf, compact plants being full of flowers of distinct colours, self and spotted, no two alike among them.

Mr. J. Forbes, Hawick, staged an exhibit of herbaceous Phlox and Pentstemons, very distinct in marking and large in flower. A. Wilson, Esq., Kelso, had a fine group of Carnations, which was awarded a 1st prize; Messrs. Laing & Mather being 2nd.

Ferns.

Ferns were well shown, some fine Davallias being observed in several collections. For six exotic Ferns Mrs. Gurney Pease was 1st, with Davallia fijiensis, D. Mooreana, Microlepia hirta cristata, Gleichenia Mendeli, Adiantum Farleyense and another. Messrs. R. Sampson & Son were 2nd. For three exotic Ferns the Rt. Hon. Lord Barnard was in the fore with Davallia polyantha, an immense plant; D. Mooreana, and a golden Gymnogramma; Mrs. Gurney Pease was 2nd, with Davallia fijiensis, D. F. plumosa, and Adiantum concinnum.

For one specimen of exotic Fern the Rev. G. Yates was 1st, with a large plant of Adiantum Farleyense. Messrs. J. Hill & Son, Edmonton, were 2nd, with Nephrolepis rufescens species. The latter firm had a large collection of choice Ferns, in splendid condition. Here were A. capillus-veneris, A. Farleyense, macrophyllum, rhodophyllum, aglaomorpha Meyeriana &c. There were classes also for hardy species of Ferns.

Groups for Effect.

For a group of miscellaneous plants, in or out of bloom, to occupy a space not exceeding 300 square feet, Mr. C. J. Mee was 1st, with a fine collection of Palms, Alocasias, Crotons, and Ferns, beautifully arranged. Mrs. Gurney Pease was 2nd, with a very pretty arrangement. These groups and others were most effectively arranged.

Capital Crotons were shown by Messrs. Simpson, Mrs. Gurney Pease, and E. H. Faber, Esq., who took prizes in the order named.

Roses.

These were shown in considerable numbers, but the heat soon caused many of the flowers to lose their freshness. For seventy-two single blooms in not fewer than thirty-six varieties, Mr. W. Hutchinson was 1st, with choice and large blooms. Messrs. J. & A. May, 2nd, and Mr. Mount, of Canterbury, 3rd. The last-named exhibitor was 1st for forty-eight blooms, and Messrs. A. & J. May, 2nd.

For eighteen distinct varieties, Messrs. Harkness & Sons were first, and Mr. Mount, 2nd.

Fruit and Vegetables.

Fruit was exhibited in moderate quantity. For a decorative table, to measure 10 feet by 4 feet 6 inches, and to include not more than fourteen dishes, the 1st prize was won by Sir J. W. Pease. A small plant of Cocos was in the centre with two vases charmingly furnished with Oncidium flexuosum, Odontoglossum crispum, Brassia verrucosa, Grasses and Ferns. The fruit consisted of Black and White Grapes, Melons, Peaches, Nectarines, Cherries, Figs, &c., in all, fourteen dishes. The Earl of Harrington (gr., Mr. Goodacre), was 2nd. The centre of this table being decorated chiefly with Odontoglossum crispum.

For a collection of six kinds of fruit, the Right Hon. Lord Barnard was 1st with Black Hamburgh and Foster's Seedling Grapes, good Peaches, Nectarines, Figs and Melons; Sir J. W. Pease was 2nd. Mr. W. Sheepshanks was 1st for four kinds, showing good Black Hamburgh Grapes, Melons, Rivers' Orange Nectarines, and Peaches. The Earl of Londesborough and Mr. F. B. Groshian, were respectively 1st and 2nd for three bunches of Black Grapes; whilst the latter exhibitor was 1st with three bunches of a white variety, showing Buckland Sweetwater. Mr. J. Edmonds, Bestwood Gardens, was 1st for a dish of Peaches, showing good Royal George; and Mr. Goodacre, gr. to the Earl of Harrington, 2nd. Nectarines were good, Mr. J. Edmonds being the best exhibitor. Viscount Raincliffe was 1st for a scarlet flesh Melon, and Sir J. W. Pease 1st with a green flesh fruit. The Right Hon. Lord Barnard was 1st with six Figs. Sir J. W. Pease 1st for Cherries; and the Earl of Harrington 1st for Strawberries. Lady Beaumont was successful with twelve Tomatos, showing Frogmore Scarlet.

Sir J. W. Pease was 1st with a very nice collection of Vegetables. A capital lot of fruiting plants of Strawberry, Laxton's Leader, was shown by Messrs. Laxton, Bedford.

Miscellaneous.

Messrs. Cutbush, of London, had a magnificent display of hardy cut flowers. For twelve bunches of hardy border flowers, Messrs. J. Burrel & Co., were well 1st, and made a fine display. Gloxinias were shown in splendid form by Mr. J. J. Upton, the blooms being of immense size, and distinct in colour.

Messrs. Harkness were 1st with a grand stand of hardy herbaceous flowers, covering a space 18 feet by 4 feet; Messrs. Smith & Co., Worcester, were 2nd.

A splendid lot of Calceolarias, mixed with Coleus, Maples, Dracænas, and mosses, was shown by Messrs. Hingston, and were awarded 1st prize.

Begonias call for no special remark.

Messrs. Kelway & Sons, Langport, Somerset, had a grand display of Pæonies, Amaryllis, and choice herbaceous plants.

AWARDS.

Gold Medal.

For a miscellaneous group of plants, to Messsrs. Fisher, Son & Sibray.

For a miscellaneous group of plants, to Messrs. Cutbush & Sons.

For Orchids, to Messrs. Charlesworth & Co.

Silver Medal.

For miscellaneous plants, to Messrs. R. Smith & Co.

For a group of Calceolarias, to Messrs Clibran & Son.

For a group of Orchids, to Messrs. B. S. Williams & Son.

For a group of Orchids, to Messrs. Cowan & Co.

For a collection of Clematis, to Messrs. Jackman & Son.

For a collection of Ferns, to Messrs. J. Hill & Son.

WARGRAVE & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

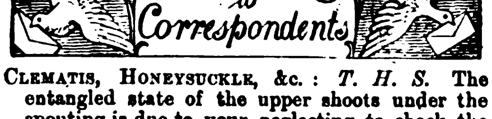
June 7.—The first monthly meeting of the Society was held at Wargrave on the above date, Mr. W. Pope presiding.

Mr. W. Bazeley, of The Nurseries, Twyford, read a useful paper on "Zonal Pelargoniums," tracing the gradual development of this favourite and useful flower. The cultivation, method of striking cuttings, kinds of soils and manures best suited to them, were in turn dwelt upon. Cut-blooms of various kinds were shown, including a new one raised by himself. A discussion took place, in which many joined. A vote of thanks was passed to Mr. Bazeley for his paper.

A Madagascar Rubber-Tree.—M. Henri Jumelle contributes to the *Comptes Rendus* for May 29, a paper on the Guidroa, a rubber-tree of Madagascar. The writer mentions that the plant has hitherto been known only under its native name, but that now, thanks to specimens sent from Suberbieville (!) by M. Périer de la Bathié, it has been possible to ascertain whether it is a new species, or can be identified with any that is already known. The conclusion arrived at is, that the Guidroa, though clearly belonging to the Mascarenhasia genus, does not exactly resemble either of the fifteen or sixteen known species, but may be held to be a new species, and may be named Mascarenhasia velutina, in allusion to the very characteristic velvety substance of the leaves. M. Jumelle describes the manner in which the rubber is gathered from the trees by the Sakalaves. During the dry season, when the milky juice is very thick, they make, he says, numerous incisions in the trunks. The milky juice coagulates almost immediately below the wound, forming small bands of gum which the workers remove after an hour, and which they agglomerate into balls. In this way one man can easily gather a kilogram of the gum in one day. The caoutchouc thus obtained is of good quality, and even, it appears, superior to that gained by ebullition. Thus it seems likely that the Mascarenhasia genus, only found on the east side of Africa and in Madagascar (especially in the north and east), will play a more important part in furnishing caoutchouc plants than has previously been thought likely.

TRADE NOTICE.

Mr. E. J. Deal having been appointed general manager of the firm of Messrs. W. W. Johnson & Son, Ltd., Boston, Lincs., has resigned his position with Messrs. Sutton & Sons, Reading.



Clematis, Honeysuckle, &c.: *T. H. S.* The entangled state of the upper shoots under the spouting is due to your neglecting to check the rampant growths at the top by a timely nipping-out of their points and letting the lower shoots alone, meantime fastening the former in a horizontal or even downward direction with nails and shreds, bast, &c. The nipping-out of the points may need to be performed twice if growth is very vigorous in the upper part. This sort of treatment is applicable to almost every kind of plant used on walls and fences.

Chrysanthemums: *J. B.* There is nothing in the specimen sent that indicates the cause of the injury. The cause was evidently a violent one, and something other than disease.

Mushrooms: *E. B. D., Addiscombe.* The fungi are Agaricus Elvensis, B., a species first described by M. J. Berkeley, and found several times since in England and in France. It is an excellent edible Mushroom, and is figured in *Cooke's Illustrations*, pl. 522. *M. C. C.*

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—Correspondent.* 1, Phlox setacea var.; 2, P. subulata frondosa; 3, P. s. var.; 4, P. s. Nelsoni; 5, P. reptans (syn. verna, stolonifera, and others).—*M. R., No.* 2. Nothoscordum fragrans.—*John Newton.* Lonicera involucrata, syn. L. Ledebouri.—*Pinner.* 1, not found; 2, Hyacinthus comosus; 3, Veronica Teucrium.—*Scot.* 1, Lonicera tatarica; 2, Ornithogalum nutans.—*C. F.* 1, Dielytra spectabilis; 2, Geranium sanguineum; 3, Hyacinthus comosus; 4, Veronica gentianoides.—*R. C. B.* A lilac variety of Scilla campanulata.—*Cardboard Box — no name.* Specimens withered and blackened beyond recognition; as a guess we note, 1, probably a Vaccinium; 2, flowers of an Ash (Fraxinus sp.); 3, Spiræa, perhaps hypericifolia.—*Twenty Years' Reader.* 1, Dendrobium Pierardi; 2, Dendrobium devonianum.—*W. W. B., Sheffield.* 1, Cattleya Mendeli; 2, Sobralia macrantha; 3, Cirrhopetalum Colletti.—*P. H., Cambs.* Vanda cœrulescens.—*J. A. B.* 1, Polygonum Bistorta; 2, Equisetum arvense; 3, Muscari comosum; 4, Chelidonium majus.—*J. H. B.* Potentilla Tormentilla.—*W. W.* Ornus europæa, the flowering Ash.—*C. G.* 1, Ulmus montana, Witch-Elm; 2, Nasturtium amphibium; 3, Barbarea vulgaris; 4, Lepidium Draba; 5, Sedum carneum variegatum; 6, Senebiera coronopus.—*J. P. L.* 1, Quercus coccinea; 2, Leucothoe axillaris; 3, Ledum latifolium; 4, Cratægus—perhaps C. crus-galli; 5, Leiophyllum thymifolium, *alias* Ledum buxifolium.—*T. E. S.* Trollius europæus; seed or division of the roots in early autumn or spring.—*No name, card-board-box.* 1, Trollius europæus; 2, Ranunculus aconitifolius; 3, Hesperis matronalis; 4, Ornithogalum umbellatum; 5, Spiræa callosa; 6, Ajuga reptans.—*W. B.* Bromus sterilis.—*Pope & Sons.* Piptanthus natalensis, Natal Laburnum.

Notice to quit Service: *G. D.* In the absence of any written agreement to the contrary, a month's notice on either side is required. Of course, if you must quit at once from no fault on your side, you can claim house-rent, allowance for coal, and other perquisites for a month.

Strawberry Plants not Flowering: *Anxious.* The soil in which the plants grow has been so much enriched with manure that leaf-growth alone has been made. Sometimes the Strawberry reverts to its original, i.e., a diœcious state, and male and female blooms are then borne on different plants. The Hautbois is persistently diœcious, and unless a pretty good proportion of male and female plants grow together in a bed, the produce is poor. We should advise you to obtain a fresh stock of young plants from beds in bearing this year; but not to destroy the barren ones, as these may carry fruit another year, and we think that this is the more probable, seeing that no flowers at all have appeared this year.

Tomatos: *D. G.* The roots show no injury. The leaves are probably affected with the sleepy disease often described in our columns.

Tulip: *Chas. S. G.*—The Tulip sent is probably an escape from cultivation, and it has reverted to a great extent towards an original species, probably F. Gesneriana.

Communications Received.—J. K. Allen.—P. B.—Secretary Royal Agricultural Benevolent Institution.—R. J. L.—H. W.—T. C.—J. F. H.—R. M.—T. Meehan, Philadelphia.—W. C.—F. C.—A. D. & S.—W. W.—Ed. Webb & Sons.—W. S.—W. S.—A. W. C.—S. A.—A. C. F.—D. T. F.—W. C. W.—C. T. D.

Specimens and Photographs Received with Thanks—H. W.—H. J. E.

(For Markets and Weather, see p. x.)

THE
Gardeners' Chronicle
No. 652.—*SATURDAY, JUNE* 24, 1899.

CHLOROSIS IN FRUIT TREES.

ONE of the most eminent of the many able writers who have enriched the pages of the *Gardeners' Chronicle*, the Rev. J. M. Berkeley, correctly referred to chlorosis as an extremely formidable plant-disease, and defined it as consisting in "a pallid condition of the plant, in which the tissues are weak, and unable to contend against severe changes; the cells being more or less destitute of chlorophyll." Horticulturists have occasionally become unpleasantly familiar with the disastrous effects of the disease, particularly in the cultivation of Cucumbers and Melons, and in too many cases the usual remedies proposed have proved of no avail. Long before the nature of the disease was known to me, I had witnessed the mischief it could occasion, and had assisted in the application of many substances that were supposed to be beneficial, but which rarely realised the expectations formed concerning them. Good effects would sometimes result from the employment of iron sulphate solutions, but this also would often fail, probably because the plants dealt with were annuals, and the disease was too far advanced before the applications were commenced.

Scientific investigators have agreed that chlorosis is mainly due to a deficiency of iron in the soil, for though the quantity required to render a plant healthy is extremely small, yet in its absence, microscopic examination has shown that the protoplasm in the cells of the leaf is without colour, and the chlorophyll granules are not formed. In the majority of published analyses of plants, iron is commonly omitted, as it is usually less than 1 per cent. of the ash, yet in some instances as much as 6 per cent. has been recorded, but this is exceptional, and amongst hardy fruits the only case known to me of a similar high percentage is the fruit of the Greengage. With regard to soil analyses also, it is seldom that the proportion of iron is given separately, and in a series of analyses recently prepared by Dr. Bernard Dyer for the Cornwall County Council, oxide of iron and alumina are given together as varying from about 5 to 14 per cent. On the plots where there is the lowest proportion of iron and alumina, there is also a corresponding low percentage of potash, and the relatively small crops produced are probably due to this deficiency; at least, in the report issued I can find no reference to the foliage of the plants showing indication of chlorosis.

Experiments undertaken by Sachs and other continental observers, demonstrated that when seedlings were grown in substances free from iron, the leaves gradually became white, and that when iron sulphate was subsequently applied the effect was seen within twenty-four hours, chlorophyll granules being formed immediately, and in a few days the plants were quite green. The process of assimilation is dependent upon the production of chlorophyll, and consequently in its absence or deficiency growth is arrested, or can only proceed at the expense of previously-stored materials. Those who are interested in this part of the subject would find a most valuable record of experiments in the "Chemistry and Physiology of Foliage Leaves," by Mr. Horace T. Brown, F.R.S., and Mr. G. H. Morris, Ph.D., in the *Journal of the Chemical Society*, May, 1893.

Comparatively seldom are hardy fruit trees seriously subject to chlorosis, but some time ago my attention was called to a remarkable case in Hertfordshire, at Hamels Park, near Buntingford, the residence of H. Shepherd-Cross, Esq., M.P., where several series of valuable and highly interesting experiments have been carried out during the past fourteen years. I have had the opportunity of carefully examining the trees in the gardens, and have further been favoured with full details of the experiments, and accorded permission to make use of them, with the result that the following digest has been prepared. Mr. Shepherd-Cross has spared no expense or trouble in the investigations, and his efforts have been ably supported by his gardener, Mr. Wallis, from whom I have received much kind attention in my enquiries.

The soil at Hamels Park is a heavy marl,[*] the proportion of chalk being large, and the same character prevails over a wide district, especially on the higher ground. The land is fertile, and suits many crops remarkably well, all leguminous plants, for instance, both in gardens and farms, such as Peas, Beans, and Clover, flourish amazingly; so also do the Cabbage and Turnip family, "club" being unknown. Indeed, it is stated that Savoy Cabbages were grown on the same plot of ground for ten years in succession without deterioration, and without any trouble resulting from either "club" or wireworm. Mr. Shepherd-Cross requested Dr. J. A. Voelcker to take samples of the soil for analysis in 1885, with the following result:—

Dr. Voelcker's Analysis of the Hamels Park Soil.

	Per cent.
Organic matter [†] and loss on heating ...	5·64
Oxide of iron	4·39
Alumina	6·36
Carbonate of lime	18·53
Sulphate of lime	0·22
Magnesia	0·47
Soda	0·25
Potash	0·48
Phosphoric acid	0·14
Insoluble silicates and sand	68·57
	100·00

Some years later, namely, in 1894, it was decided to have a special analysis of the chalk alone; this task was also entrusted to Dr. Voelcker, and his record is here appended:—

Analysis of Chalk.

Moisture	0·10
Oxide of iron and alumina	0·10
Carbonate of lime	99·20
Magnesia, alkalies, &c.	0·30
Silica	0·30
	100·00

Judging from the above, the opinion would be formed that while not rich in potash, the soil contains as much as many others, its chief marked characters being a low percentage of phosphoric acid, a small proportion of organic matter, and, consequently, of nitrogen, with a large quantity of carbonate of lime. The iron, too, is quite equal to that in many soils where no trouble is caused by chlorosis.

The behaviour of fruit-trees at Hamels Park is, however, so remarkable, and failure so persistently followed every early attempt at their culture, that for some years it seemed a hopeless task. All kinds of hardy fruits failed in a similar manner. In two or three years from planting, the foliage on some branches would become pale or whitish; in the following year the leaves on these branches would be still weaker, they were readily scorched in the sun, and later in the season they would become perforated, "appearing," as Mr. Wallis says, "as if they had been shot." The branches gradually lost strength, and were unable to produce any foliage, while in the Cherry and Apricot the affected portions quickly died.

In most cases where chlorosis became manifest, fruit-buds were not produced, but when any fruits were borne on Apples or Pears so affected they failed to develop satisfactorily, and were disfigured by "scab." Plum trees were found to resist the disease for the longest time before entirely succumbing, but such fruits as might be produced proved almost worthless. Peaches and Nectarines showed similar effects to Plums, Apricots, and Cherries, while, amongst other fruits that suffer, must be named the Gooseberry and Currant, Raspberries, and even Strawberries, the last seldom surviving beyond the second year, but dying soon after the flowers have opened. It may be added that Roses and Laurels are subject to the disease; Bouvardias and Chrysanthemums, with many other ornamental plants, also fall victims when grown in the same soil, either out-of-doors or under glass. The evil, it will be seen from the foregoing, is very general, and afforded ample scope for a thorough investigation respecting the causes and possible remedies. It was suggested that the employment of different stocks for the fruit trees might act beneficially, but experience proved that this had not the effect supposed, and those now in use, and satisfactory, are the broad-leaved English Paradise for Apples, the Quince for Pears, and the seedling Greengage for Plums.

It has been considered that cold soils and bad drainage may either operate as direct causes, or at least increase the injuries arising from chlorosis. For this reason experiments were commenced, with the object of improving the conditions, so that deep rooting might be prevented, and thorough drainage be ensured. To this end, stations were prepared for fruit-trees by removing the soil to the depth of 4 feet; the base of each was cemented and connected by drains 6 inches lower. Upon the cement a layer of brick-rubble was placed 1 foot deep; and above this, 3 feet of soil, in which the trees were planted; or in a few cases the soil was raised a foot above the ordinary surface. In all these experiments the foliage failed at the usual time, and in the same way, as with those trees receiving no special treatment.

Stations were next prepared in a similar manner, but all the old soil was removed, fresh turfy-loam being substituted. The trees made better progress in this at first, and the foliage continued healthy for a longer period, but it ultimately failed, and the progress of the disease was then more rapid, especially as regards Peaches. Many of the ordinary natural manures were employed at different times, including that from horses, cows, fatting bullocks, and pigs, either separately or in mixtures. The only appreciable results being that while the trees made a more vigorous growth for a time, they failed proportionately more rapidly afterwards. *R. Lewis Castle.*

(To be continued).

ORCHID NOTES AND GLEANINGS.

CATTLEYA LAWRENCEANA.

MR. HART of the Trinidad Botanic Garden has kindly sent us two flowers of this species, in both of which one of the lateral petals is adherent to the column, which is more curved than usual.

SELENIPEDIUM SCHRŒDERI ×.

Count Kerchove obligingly sends a flower of this form in which the two lower sepals are conjoined into one, and twisted so as to occupy the front of the flower, whilst the single lateral petal is placed opposite, or at the back; opposite this petal is the lip in the fore part of the flower. At the back of the flower is the column with a single anther Al and a two-lobed staminode. The ovary is two-lobed, with two placentas. There is thus a tendency for the parts of the flower to be arranged in twos, and in one straight vertical line one over another.

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[*] The marl is 10 to 20 feet deep, resting on chalk.

[†] Containing nitrogen 0·28, equal to ammonia 0·34.

ABNORMAL CATTLEYA.

From the garden of Sir F. Wigan comes a curious flower of Cattleya Mossiæ. The parts of the flower are in twos instead of in threes, and there are two lips, so that the flower is regular. There are two sepals, one to the right, the other to the left, and one a little like the lip. Crossing these at right angles, are two lip-like petals, and in the centre an erect column with the anther on the top, as is the rule in such cases. The malformation thus depends on reduction of parts and peloria.

PROLIFEROUS BUDS OF PINUS SYLVESTRIS.

RECENTLY, passing through a plantation, we were struck by a peculiarly bushy appearance of the branches of a young tree of this species (fig. 147). On examination we found that the shoots of the year, instead of extending in length, were contracted or arrested in growth, and the pairs of leaves with their encircling bud-scales were huddled together into subglobose masses, each the size of a large Pea. From these projected the tips of the primary leaf-scales, so that a hedgehog-like appearance was presented. But this was not all. Between the two foliage-leaves was a terminal bud, consisting of an indefinite number of overlapping scales. At the base of each of these masses of scales were the dried remnants of a similar growth in the preceding year. It is possible these appearances are due to the irritation caused by insect-puncture, but we were not able to discover any insect or fungus.

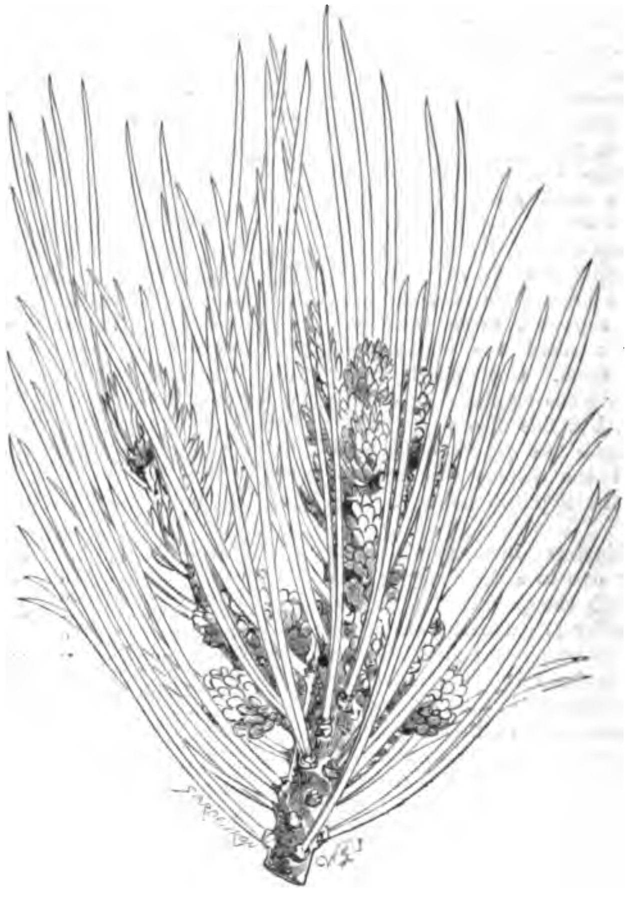


FIG. 147.—PROLIFEROUS BUDS OF PINUS SYLVESTRIS.

FORESTRY.

THE LEAFING OF TREES.

(Continued from p. 358.)

THE observations in question were made at over 200 stations scattered over the German Empire, and the results obtained were summarised in a report drawn up by Dr. Karl Wimmenauer, of Giessen. They covered a period of ten years, from 1885 to 1894, and extended to the leafing, fruiting, and autumn leaf-colouring of all the more important forest trees and shrubs. The more important of these conclusions arrived at, or which confirmed those of previous observers, had reference to the order in which different trees break into leaf, the time of flowering, ripening of the fruit, and yielding of seed; and the influence of latitude, longitude, and elevation in the several phases of growth.

The order of leafing was found to be as follows:—Larch, then Birch, Hornbeam, Beech, pedunculate and sessile-flowered Oaks, Silver Fir, Spruce and Scots Fir in the order named. At great altitudes the Hornbeam was frequently found to be later than the Beech, while the sessile-flowered Oak was usually later than the pedunculate species.

The time of flowering and fruiting is of no special interest, but the influence of situation exhibits some interesting features. Latitude had naturally more influence than longitude, and as the field of observation extended over 4½° of latitude, uninterrupted by sea or ocean currents, or other disturbing factors, the results obtained may be considered fairly trustworthy. Every degree of latitude was found to cause a difference of two to seven days in the leafing process, the comparisons being made between stations of the same altitude. Longitude was found to exert a slight but decided influence upon vegetation. From west to east every degree of longitude made a difference of half a day later in growth, probably owing to the influence of the Gulf Stream in the west, and the prevalence of cold-air currents in the east.

Altitude had, of course, the greatest effect in retarding or hastening growth, the stations being grouped at every 100 mètres. Up to an elevation of 300 mètres, no great difference was found to exist, the lowest situations being frequently, however, behind those at a higher elevation. This was, probably, owing to the late frosts, which occur in low-lying situations. Above 300 mètres, every 100 mètres in altitude retarded vegetation by from 2 to 2·5 days.

Another point of interest was the duration of growth, reckoning from the leafing in spring until the colouring of the leaves in autumn; and its influence upon the production of wood. In the observation field, the duration of vegetation was found to vary to the extent of a month or so, and this difference was responsible for a corresponding difference in the yield of Beech of about 2½ cubic mètres per hectare a year. With the Scots Fir rather a greater difference was observed in West Germany, and rather less in East Germany. The variations noted in individual years in the leafing and duration of growth extended over a period of thirty to thirty-five days in the former, and thirty to forty-five days in the latter phase of growth. The valleys of the chief rivers were noted separately, the greatest difference being noted in the case of the Elbe, the earliest leafing taking place on April 9, and the latest on May 15, while duration of growth varied from 140 to 185 days in the ten years.

It will be noticed that the difference in time between early and late individuals, localities, and years, is very much the same as regards the period of leafing, viz., thirty to forty days, and this coincidence opens up a field of speculation as to how far the influence of climate and situation may be counteracted by a careful selection of seeds and plants. If an interval of a month or six weeks occur between the leafing of two individuals growing side by side, or a certain number of individuals commence growth a fortnight or three weeks before the average, it is not unreasonable to assume that by growing such early individuals, we gain much the same advantage as would accrue from a warmer climate, or a lengthening of the period of growth. In horticulture the supply of fruit, flowers, and vegetables, is considerably extended by such selection of varieties, and if the question is of less economic importance in the case of forest trees, it certainly deserves consideration from a landscape point of view. By the use of hardy individuals in a backward climate, or a proper admixture of both early and late trees and shrubs, the beauties of both spring and autumn may be greatly intensified. With our fickle spring climate, precocity is often considered a disadvantage, and in some cases it may be so; but when we reflect that injurious late frosts and cold, cutting winds occur as frequently in late as in early spring, it seems that no method will effectually preclude all liability to climatic injuries. Probably little can be done to enliven the dull, monotonous green of a thickly-wooded landscape in July and August, but by retarding the spring and hastening the autumn foliage shades and tints, the dull period might be shortened by several weeks, and in effecting this, individuals may play as important a part as species or varieties. *A. C. Forbes.*

SCOTLAND.

ROSES.

THE alternating cold, wet, and intense heat which have been thus far the prominent meteorological features of the present year, have dealt the whole not unkindly with the queen of flowers. H.P.'s and Teas while I write are in the pink of condition; foliage broad, bright green, and almost without a flaw, though a slight incursion of aphis has just been met and annihilated; and the buds are equally promising, and withal early. During the whole of June we have been able to cut lovely buds of W. A. Richardson from the open, as well as Gloire de Dijon and a few others, the trees of which were pruned early in January. I am aware it closely approaches a floricultural delinquency to prune Roses early, and if it had not been that a fairly lengthy course of practical dissent, in its results not wholly unsuccessful, had rendered the writer somewhat callous, the weather in March must have been a cause of much grief, inasmuch as all the Roses had already been pruned.

One might attempt to grapple with the physiological bearing of the question, as for example, why a bare stump in the end of March should be less able to resist cold than an unpruned bush; or it might be treated of as a matter of locality, and the success of early pruning attributed almost entirely to that—but in any case, considering the great pleasure attending the enlargement and extension of the season of Roses, would it not be worth while to be cautious just a little less, and bold a wee bit more, as regards the time of pruning? That, however, by the way; for the Roses I wish more particularly to write of do not belong to the aristocracy of the family.

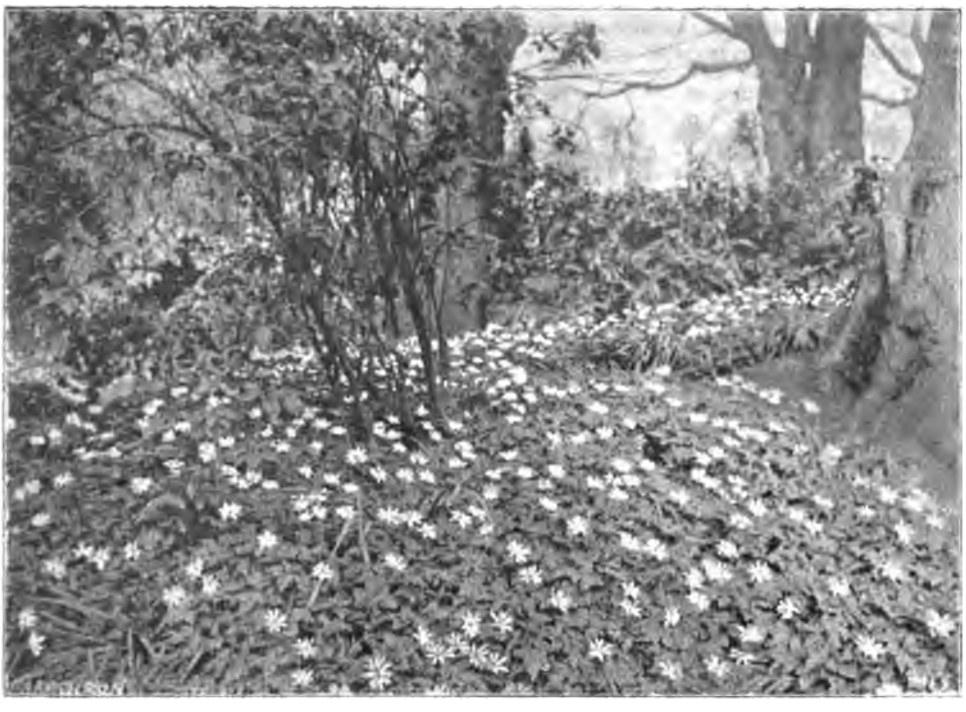


FIG. 148.—ANEMONE APENNINA, IN THE GARDEN OF PHILIP CROWLEY, ESQ., WADDON HOUSE, CROYDON.

I have been gathering from many quarters all kinds of nice Roses, and among these are some early ones that have been a very great delight. The most perfect of all, whether in free-blooming qualities combined with earliness, graceful habit, and delicious scent of sweet Eglantine, is one recommended to me by the late Mr. M. Dunn under the name of Rosa elegantissima, which, though cream-coloured, I have wondered if it might not be the yellow Sweet Briar of seventy or eighty years ago. Mr. Dunn employed the long shoots for mixing among flowers, and on this account it is very useful. But as a flowering plant it is even more so; while the flexile shoots, clothed with buds and expanded blooms, arranged in vases with flowering shoots of the Early Cream Honeysuckle, produce a soft, sweet, and harmonious effect of a pleasing nature. Another very early single Rose was sent me by Mr. Black from Carton; the colour is rosy-purple, and though the bloom is perplexingly fugacious, it is, nevertheless, so pretty and so early, that once grown one would not care ever to be without it again.

Yet another single Rose which, as a large plant, bloomed most profusely throughout the month is Paul's Carmine Pillar. It is, of course, a popular variety, and I only add that it must be left unpruned in order to be completely satisfactory. Double Scotch Roses began early in the month to exhibit the charms of their expanding blossoms. Only in one respect are they disappointing, and that is because of the very limited number of varieties it is possible to obtain. They have been procured from several sources including Dalkeith, but in every case they have largely turned out to be merely duplications of a few varieties reaching in number not far into the teens. Of their undoubted beauty, however, there can be no question, and though the petals when full expansion has been reached, drop very soon, yet they furnish so many buds in varying stages of growth that a display is provided during several weeks. The very distinct and sweet Stanwell Perpetual begins flowering at the same time with the above. *R. P. Brotherston.*

ANEMONE APENNINA.

We are indebted to Mr. Crowley for the photograph, showing a beautiful carpet of the blue Anemone apennina under the shade of trees in the wild garden. Nothing can be more pleasing than the growth of such plants in appropriate situations, as shown in our illustration (fig. 148); but when these plants are allowed to intrude into the lawns or dressed gardens, they become inappropriate, and much of their beauty is lost.

SOUTH AFRICAN NOTES.

THE FLORA OF JOHANNESBURG.

In Mr. Harry Bolus' excellent sketch of the flora of South Africa nearly the whole of the Transvaal is comprised in the great (floral) Kalahari region, which extends across South Africa from the mouth of the Orange River on the west to within nearly 300 miles of Delagoa Bay on the east. Roughly speaking, it is bounded on the north by the Tropic of Capricorn, and on the south by the Orange River. It is a grassy country, elevated above the sea from 1000 to 6000 feet, with isolated trees and shrubs. The rainfall varies from about 5 inches on the west side to 28 inches on the east. Rivers and springs are not very plentiful, but immense stores of underground water are known to exist at no great depth over a large part of the region. The summer heat is very great, and the winter on the higher ground is very cold.

The flora in the immediate neighbourhood of Johannesburg is not very rich, but some interesting plants have been met with—altitude 5000 to 6000 feet. The only tree we have (which was once abundant, but has been cut for firewood) is an Acacia, probably A. horrida; and the next in point of size and number is a Protea, which may be P. abyssinica, with large, handsome, pale red flowers, 3 to 4 inches across. The largest specimen of this seen was about 20 feet high, with a trunk 2 feet in diameter. Two remarkable sub-tropical shrubs are—a species of Star-Apple, Chrysophyllum magalis montanum (common name, "Stem-fruit"), an evergreen, large-leaved, Rhododendron-like shrub, growing 10 feet high, and furnished with very small, greenish, sessile flowers, and edible, red, oval fruits, 1 inch long; the other is a rambling, evergreen, Jasmine-like plant, Landolphia capensis, with terminal clusters of white, sweet-scented flowers, and fruits like a yellow Peach (common name, "Wild Peach"), 2 inches through, flavour pleasant, and much sought after by the "boys." Both these plants only grow on hill-sides facing north (the warm side), where frost is hardly ever known.

In similar places we find Clematis Stanleyi, certainly one of our finest flowering plants. It is of erect, shrubby habit, growing 4 to 6 feet high, and dies down to the ground every winter; the flowers are many, pale blue or purple, about 2½ inches across, followed by very ornamental, silver-white, fluffy seeds. It is difficult to transplant or grow in a garden; I have tried seeds, cuttings, and dug up roots with no success. Clematis brachiata is a rather common plant with small white flowers; another climbing species has much larger flowers, but I have never seen an entire plant. Between rocks a showy orange-yellow Gladiolus grows; also Dicoma Zeyheri, with hard, spiny, shining white bracts. Near by, a singular shrub with very woolly white leaves is not uncommon; it is Brachylæna sp., a Composite that spreads over rocks and is of scandent habit. Ficus, whose young leaves in spring are of a bright rose colour. In rocky clefts we find a tuberous-rooted rambling Cucumis, with showy red fruits; a white Hæmanthus, H. Bauri; also two rather handsome yellow-flowered Composites, Stobea radula and Berkheya acicularis. Amongst rocks is an orange-flowered succulent, Cotyledon orbicularis, and the handsome, very dwarf, scarlet-flowered Aloe Cooperi. Mesembryanthemums might be expected to be common, but I have only met with one dwarf, red-flowered species, although a friend brought me from outside the town a great curiosity—a species with only two minute leaves, the solitary yellow flower produced in the middle. It belongs to Sonder's section Sphæroidea. A species of Hebenstreitia, with many small white flowers, is about 4 feet high. Hypoxis longifolia is plentiful; and a very curious moss-like plant is Psammotrophe androsacea, with small, yellowish flower-spikes, 3 inches high. I was surprised to find a very small white Nerine growing in peat on dry, rocky shelves—a most unusual locality. Other shrubs are Halleria lucida, with its small orange flowers produced directly from the main trunk; Buddleia salvifolia, Rhamnus prinoides, and one or two Rubus.

On sloping ground and dry flats a variety of plants are met with. Gerbera Kraussii has rather large white flowers; a smaller species with pink-rosy flowers is also common. An annual Nemesia, with lilac blooms, is met with, and a very large-leaved tuberous-rooted, rambling Ipomœa, with large purple flowers. In early spring a very dwarf white-flowered plant is common, looking like patches of snow; the flowers are very minute, and numerous; it is Helichrysum cæspitosum, though Harvey says that it scarcely differs from H. ericæfolium. Another plant resembling the last in habit and colour of flower is Selago phylicoides.

Amongst bulbs, we have a white and yellow Albuca, the yellow Moræa polyanthus, a very showy pink and white Brunsvigia, also B. toxicaria, and the pretty purple Babiana Bainesii. The blue Pentanisia variabilis is rather common, with an annual blue Lobelia and a yellow Sebæa. Callilepis leptophylla is a showy white-flowered herbaceous Composite, and Dimorphotheca Eckloni of the same order has large, handsome, purple flowers. Many Gomphocarpi abound, and Asclepiadeæ; one in particular given to me is, I believe, a genuine Stapelia Planti, with its wonderful corrugated, five-starred, purple flowers. There are two or three bright rosy Indigofera, and one showy, leguminous plant is Vigna angustifolia, a prostrate herb, with long, tuberous roots, and large, very handsome, bright purple flowers. Cyanotis nodiflora is also not uncommon.

In damp, marshy places there are a few plants I must mention. Plocandra purpurascens is about a foot high with very many rich purple flowers, ½-inch across, growing in masses. Lythrum Nelsoni is a heath-like shrub, 2 feet high, with spikes of small rosy blooms. Gladiolus papilio is not very common, but I once was fortunate in finding a colony of several hundreds growing within a few yards of each other. Several Tritomas, varying in colour, from pale yellow to nearly snow white, are met with. The Cape and Natal T. Urania is not seen here. A climbing Asparagus grows in damp shady places, and is much used for decoration. Richardia africana, so common in wet places in the Cape and Natal, is not found here, but its place is taken by several species with rather small cream-coloured flowers, with or without a dark spot at the base of the spathe, leaves green or white-spotted. M. Leichtlin has discovered a new species amongst some tubers sent him, and named it after the writer. The golden Richardias, Elliotiana and Pentlandi, are found in the Transvaal, but not near Johannesburg. The pink-flowered R. Rehmanni we have found to become almost pure white under cultivation, which is a pity. By the sides of streams grow Gunnera perpensa, Typha latifolia, Schizostylis coccinea, and a few dwarf sedges and rushes. Nymphæa cœrulea I have seen in ponds a few miles from the town. Striga coccinea is a dwarf plant, parasitic, I believe, on the roots of grasses in the open country, and possessing bright scarlet flowers.

Of Orchids, I am unable to say much. No Epiphytes are seen, owing to the dry, cold air. A pretty yellow Eulophia and the small, white, long-spurred Habenaria tetraptera are all I have met with up to now. Ferns are also rare, though Cyathea Dregei was once common in most sheltered places. Now and then you see an Asplenium or Cheilanthes, and still more seldom Adiantum capillus-veneris, but Pteris aquilina is common. The grasses are mostly species of Andropogon, Anthistiria, Aristida, and Cynodon. Mosses and fungi are rare. We have no Heaths, Cycads, Palms, Euphorbias, Begonias, Coniferæ, and hardly a Pelargonium, except the allied species Monsonia. As yet we have scarcely any imported weeds.

Such in brief, is the native flora of this part of the Transvaal, and I regret that I have no work on the subject to assist me, except Harvey and Sonders' *Flora Capensis*, and its continuation, which affords some information. On first coming here, I used to take short botanical trips; but of late years my duties leave no opportunity for doing this, or forming a herbarium. *R. W. Adlam, Joubert Park, Johannesburg.*

HERMAPHRODITE FLOWER OF BEGONIA GLOIRE DE LORRAINE.

Can fertile seed be obtained from this plant, either from flowers crossed by its own pollen or by that of any other species or variety?

As far as my observation goes, no female flowers are to be found till late spring or early summer, when a few appear on the extremities of the branches; at the same time I have searched in vain for a particle of pollen in any of the male flowers. Simultaneously with the development of the female flowers, a considerable number of the males produce among the stamens one, two, or even three more or less perfect pistils; quite unlike, however, those of the regular female blooms, as the stigmas are carried on the apex of a long column, and are two or three-lobed, their outer edges being fringed with innumerable delicate papillæ, which make them beautiful objects under a low power of the binocular microscope. But in no case have I discovered a trace of pollen in the imperfectly-formed stamens, nor is there the least sign of the inferior ovary of the genus Begonia. Is this an interesting reversion towards an ancestral hermaphrodite form?

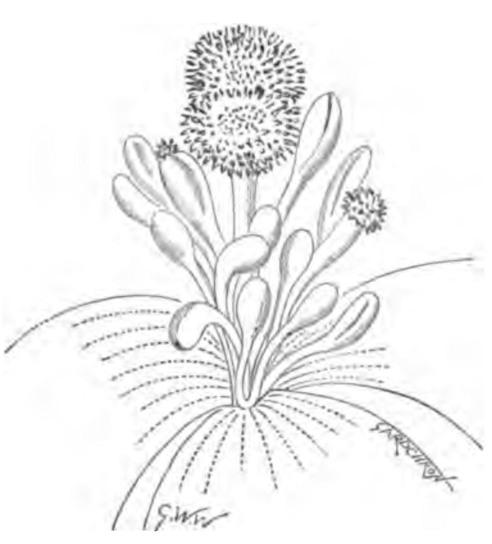


Fig. 149.—Hermaphrodite flower of Begonia Gloire de Lorraine.

It is well known that, both in the animal and vegetable world, it is characteristic of such reversions that neither the male nor the female organ is otherwise than imperfectly reproduced. I enclose a sketch of a flower (fig. 149), in which Nature has made one tolerably successful, though useless, attempt to form a pistil, together with two more abortive ones. *A. W. Wills.*

The Week's Work.

FRUITS UNDER GLASS.

By W. Strugnell, Gardener to the Right Hon. W. H. Long, Rood Ashton, Trowbridge.

The Early Pot-Figs.—If these plants occupy a house to themselves, and there is no prospect of another profitable crop of fruit, remove them to another house, preparatory to placing them out-of-doors a little later. The Fig-house may then be utilised for Melons, with or without bottom-heat. The Fig-trees may be stood among indoor-plants, or in other fruit-houses where overhead-light reaches them, and where the wood may get properly ripened by the end of August, and they will be in a fit condition for a start early in the winter. Trees which will not be forced so soon, or for which accommodation does not exist, will afford a light crop if the shoots are stopped occasionally, and manure-water be afforded alternately with clear water. Failing other manure, bone-meal sprinkled on the soil has a good effect. The pots being filled with roots, much moisture should be supplied. The Fig suffers greatly from a species of scale-insect, which appears from now onwards till the leaves fall. Hot-water at 150° to 160°, as we know, is fatal to scale, and it may be safely used on the Fig; and those who may have doubts as to its efficacy or its effects on the plants, can easily put it to the proof in a small way before proceeding to use it on all the trees. A quick man with a pointed stick will clear a few trees of the scale infesting them in a short space of time. Young Figs raised from "eyes" this season should be potted as fast as the roots fill the pots, as should also older plants, if the object is to fruit them in pots. Although not absolutely necessary, it is better that the plants are freed from root-suckers as soon as these appear. A goodly proportion of broken mortar and plaster should be employed in soil in which Figs are grown.

Strawberries.—Simultaneously with the closing of the fruiting season of pot-Strawberries comes the need to make preparations for the following year, but it does not follow that I advocate immediate layering. Except for very early forcing, there is no necessity to layer any just yet, but the plants set apart for the production of runners will be benefited by having water copiously more or less often during dry weather. The best runners for early work are obtained from plantations made the previous year, and which have not been allowed to flower. I can recommend Royal Sovereign and Leader as being excellent varieties for forcing. By washing and crocking the pots whenever an opportunity occurs time is economised, and there will be less hurry when the work has to be done later on. It is a matter of opinion whether Strawberry-layers should be placed on the fruiting-pot, or on small pots or bits of turf, to be transferred to the fruiting-pots in July and August. Each has its advantages and disadvantages. For one thing, the latter course requires the proportion of two sets of pots, and the other of only one.

PLANTS UNDER GLASS.

By C. R. Fielder, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Azalea indica.—Plants which flowered early in the year having finished growing and set their flower-buds, may be placed out-of-doors in a partially sunny place to mature the wood, standing the pots on a layer of coal-ashes, or, preferably, plunging the pots in a bed of that material. Great attention must be paid to affording water to these plants during the ensuing three months that they will pass out-of-doors, sun and wind causing rapid evaporation of moisture from the soil. A syringing morning and evening will help to maintain the foliage in a healthy condition, and keep down thrips. Those plants which, having flowered late, are now making growth, may be assisted with an occasional application of weak liquid manure, particularly such of them as have not been repotted this season. If an Azalea is much pot-bound, and likely to suffer before it flowers again, it may be potted at the end of July or early in August, care being taken not to afford a large shift, or cause a renewal of growth.

Epacris.—Those plants which were cut back after flowering, and when broken into fresh growth were repotted, as advised in an earlier calendar, will have made a considerable amount of growth in the close house into which they were put, may be gradually afforded more air before being placed out-of-doors later; and when the growth is completed, they may be hardened off for a few weeks, and then placed in a cold pit or common frame for the rest of the summer. They will be the better for a syringing night and morning in fine weather, and a thin shading thrown over the glass during bright sunshine. When growth is quite complete, the lights may be altogether removed.

Ericas.—The early-flowering species and varieties now growing freely should have abundance of air during the day, and in very warm weather a small amount during the night. If the Ericas have to be grown among other kinds of plants, do not allow these to prevent sun and air reaching the Ericas on all sides, or the latter will suffer greatly. Great care is necessary in affording water to these plants, as also to Epacris; but where the drainage is in good order, and the plants are growing freely, liberal supplies are necessary and safe. To allow a Heath to become very dry at the root is fatal. Rain-water is best for them, and water impregnated with chalk about the worst. A house or greenhouse pit facing the north is more suitable for Ericas at this season than one having a southerly aspect, it being cooler and less sunny, and consequently there is less need for shading the plants.

THE HARDY FRUIT GARDEN.

By C. Herrin, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Apricots.—Chiefly by reason of the inclemency of the weather while the trees were in bloom, the Apricot crop is a thin one. This condition of the trees is usually accompanied by a stronger wood growth than usual, which is not favourable for the prospects of a good crop. All strong shoots, especially those which form a right angle with the wall, should be pinched at the fourth or fifth leaf reckoning from the base, and such of the strong shoots desirable of being retained should be depressed at the point, in order to check development for a time at least, superfluous ones being removed altogether, leaving only those for which there is space, and leaving them at 4 to 6 inches asunder. The trees are so far healthy, and nearly free from caterpillars, and where the latter are in evidence they should be picked by hand, and destroyed. An occasional syringing with clear water in the early morning or evening will keep the trees in good order. Rapidly-swelling shoots should be examined, and the pressure of a neighbouring nail relieved by the removal of the latter, or that caused by an overtight tie rectified, or cankering of the shoot may occur. Where a good crop of fruit has been secured, the final thinning should now take place, and the fruits sent into the kitchen for consumption in a variety of dishes.

Fig Trees having now made much growth, many of the shoots will have to be removed, in order to avert crowding. The leaves are of large size, and the shoots necessarily require more space than do those of other trained fruit-trees. The small laterals should be rubbed off, and some young shoots coming from the base of the tree trained in, to take the place of those that have become generally fruitless, excepting towards the points. Train-in the shoots not less than 6 inches apart, and nip out their points just beyond the young fruits if further extension be undesirable.

General Work.—During hot and drying weather affording water to plantations of Strawberries, Raspberries, and indeed to fruit-trees generally, will be very necessary work; and if newly-planted or severely root-pruned trees, and the rows of Raspberries have not been afforded a mulch of half-rotted manure this should be attended to forthwith, and water copiously applied soon afterwards, i.e., before its manurial properties have had time to evaporate.

THE FLOWER GARDEN.

By A. Chapman, Gardener to Captain Holford, Westonbirt, Tetbury, Gloucester.

Carnations and Picotees.—The flower-spikes of those plants growing in borders and beds, if the plants are intended for affording effect, should be tied to neat stakes, making the ties sufficiently loose to let the spike grow upwards without crippling it. When the plants are grown merely for affording flowers, it is a saving of time to support the stems with the sprayey tops of peasticks or of the birch placed between rows. This method if applied to Pinks, and the white and double crimson Cloves, enables the flowers to be readily cut, and keeps them clean. Carnations, &c., in light soils, should be frequently afforded diluted drainings of the cow-stall mixed with some fresh soot, given in a clear state, not muddy; or a sprinkling of bone-meal may be afforded. With this kind of treatment, finer flowers, and stronger "grass" for layering are obtained. The delicate pink-coloured varieties, such as the Duchess of Fife, lose their colour soon if exposed to much bright sunshine, and they should be shaded during the sunnier hours. In order to have fine Carnation blooms, the buds should be thinned to two or three on a shoot, each with a footstalk.

Gladiolus.—If planted in beds by themselves, let the ground be kept free from weeds, and if it be of a heavy nature the surface should be often stirred by the Dutch-hoe. In light soils frequent applications of water and a mulching of horse-droppings to the depth of 3 inches, spread evenly over the surface, should be afforded. To ensure that no accidental loss of flower-spikes occurs, the plants should be provided early with stakes, leaving these at full length till the blooms commence to show, when they should be shortened back to the height of the lowest flower in order to avoid the bruising and rubbing of the blooms by the wind forcing the flower-spike against the stake.

Vases and Tubs, when planted with bedding-out or other plants, have a pretty effect on steps, terrace-walls, and margins of turf, and on balconies, or as "dot" plants on the lawn, or plunged in flower-beds. The bitter and sweet Oranges, Oleanders, Brugmansias, Sweet Bay, Myrtles, and Portugal Laurel, will live in good health for years in tubs with ordinary care, requiring but little protection in the winter. Though it is usual to clip these subjects into rigid shapes, they are more beautiful when grown naturally, with just a little trimming with a knife when inclined to become lopsided or of too unwieldy a size. Such plants as Agapanthus, Agaves, Hydrangeas, Fuchsias, and Marguerites, form good sized masses, and can be placed in aspects near the roots of trees where beds could not well be formed. Tubs and vases look best when filled with plants of a good size, and sufficient mould employed as will carry them through the season without loss of foliage. Loam and leaf-mould make a suitable compost. The tubs, &c., must be well drained and made quite clean by scrubbing with hot water. In the course of the season, the tubs, &c., get filled with the roots of the plants, and it is then necessary to pay very strict attention to affording water, or the plants will suffer seriously. Where the soil is not chalky, Rhododendrons are successfully grown in tubs, provided peat and sand be used in planting them; or even in chalk districts, good results are attainable if only rain-water be afforded them. Ornamental baskets and large vases have a good effect when filled with foliage plants and flowering plants of pendent habit, and planted near the sides.

Hardy Fernery.—It is seldom at this season that we get rain in sufficient quantity to reach the roots of Ferns, and copious supplies must be afforded them by means of a water-pot or hose, especially to such moisture-loving plants as Osmundas, Polystichums, Scolopendiums, and all Ferns which form a dense canopy of fronds. It does the plants good to sprinkle the fronds morning and evening in hot weather.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Cattleya Warscewiczii, syn. C. gigas.—This plant, as it goes out of flower, pushes forth roots at the base of the newly-made pseudo-bulbs, and this is a proper moment for re-potting or surfacing the plant, which, if delayed much, are apt to prove injurious to the plant. If the plant can be conveniently suspended, a pan is best, otherwise, use an Orchid-pot. Afford the plant ample drainage by placing most of the crocks erect, use the best fibry peat, and but little sphagnum-moss; afford water sparingly till the roots have seized upon the potting materials, and if moisture should collect between the sheathing bracts and the pseudo-bulbs, carefully unfold the former, so that it may evaporate, as if allowed to remain the pseudo-bulb may be lost.

Cattleya aurea and C. Rex.—When the flower-sheaths appear in the new growths more water is required by the plant, as also in the case of C. × Hardyana and C. Massaiana; and when, as in the case of C. Warscewiezii, root action occurs, re-potting, &c., should be performed.

Lælia albida.—This species will now be making new roots, calling for fresh rooting-materials. For this plant shallow perforated pans are best, and these should be hung in a light and airy position in the Mexican-house. The drainage of a pan must be ample, and the surfacing and potting-mixture should consist of peat and sphagnum moss. It is a plant requiring very little moisture, and, excepting when just developing its growths, but little should be afforded. Lælia autumnalis is an Orchid that requires similar treatment to the last named, and L. furfuracea is a cool-house species which may be hung near a ventilator, in a light house.

Lælia anceps.—Varieties should now be kept well-moistened at the root with the syringe and the watering-pot, and exposed to a good deal of sunlight except during the brightest part of the day, with abundance of air afforded, and every means taken to encourage a sturdy growth.

Dendrobiums thyrsiflorum, densiflorum, Farmeri, and Schröderæ.—These plants should now be placed in a growing atmosphere, and when the roots appear at the base, afford the plants new material. Until this time arrives, scarcely any water should be applied; but afterwards the compost should be kept moistened, and the undersides of the leaves syringed twice daily in bright weather. When the pseudo-bulbs are grown to full size, remove to a suitable position, where there is more light and air, affording sufficient water to encourage root-action. Do not expose the plants to draughts, or spotting of the leaves will follow.

D. moschatum and D. fimbriatum.—Apply fresh material to the plants, and increase the supply of water at the root. The plants may remain in the East India-house permanently; but if space can be found for the former in a slightly cooler and drier house, it may be removed thereto when the growths have attained their limit.

THE KITCHEN GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Tomatos in the Open.—The plants, whether grown against walls or fences, or fastened to stakes, should be made secure, laterals frequently trimmed off, and very vigorous leaves reduced in size; excepting where the rooting space is small, then the laterals only should be removed. The plants must not suffer lack of water at the roots, otherwise the flowers will not set satisfactorily. I have tried various methods to induce the flowers to set, and incidentally I have found that dry soil was the cause of many of my failures. When a good set is obtained, place a mulch of decayed manure over the roots, and freely afford liquid-manure alternately with clean water.

Asparagus.—From the present time the cutting of Asparagus-heads should cease generally in the South, and the beds receive a dressing of agricultural-salt, nitrate of soda, guano, or fish-manure, or failing these, of farmyard liquid-manure. The artificials should not exceed at one dressing 2 oz. per square yard. If heavy rain fall, no water need be afforded, otherwise they must be washed down to the roots by a thorough application of water. All weeds should be cleared off the beds before anything is applied. Keep the land between the rows of seedlings hoed frequently, and failing an abundant rainfall apply water which has been warmed by exposure to the sun.

Scarlet, and other Runner Beans.—The rows of plants should receive their stakes before the bine has run much, and a thick layer of manure along the side of the rows if the land be light of texture. If it be found dry on testing it, apply water plentifully, repeating the application if the weather keeps dry and hot, in order that the flowers may set satisfactorily, dryness at the roots being one cause of failure to set their flowers. Let the last sowing be made forthwith in well-prepared and moistened trenches, and before sowing the seed steep it for a few hours in water.

Beetroot.—The main crop of Beetroots should be singled, the plants being left at about 8 inches apart. As some of the plants left for the crop are sure to be loosened, however careful the workmen may be in thinning, a good application of water should follow the job, in order to settle the soil about them. Blank spaces in the lines may be filled up by planting thinnings that are in a perfect condition. If it can be managed, the whole of this sort of work should be carried out in showery weather.

Remarks.—The dry weather is telling injuriously on most crops. Those gardeners who have made preparations to meet a drought by heavily manuring and deep-trenching the land, will now reap their reward in vigorous plants, &c.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	June 24	Windsor Rose and Horticultural Society's Show. Royal Botanic Society, Meeting.
TUESDAY,	June 27	Royal Horticultural Society Committee (special prizes for Roses).
WEDNESDAY,	June 28	York Florists', Exhibition of Roses. Rose and Horticultural Shows at Richmond, Croydon, Bath, Maidstone, Reading, and Ryde, I.W. Annual Dinner of the Gardeners' Royal Benevolent Institution.
THURSDAY,	June 29	Royal Horticultural Society of Ireland, Exhibition. Rose and Horticultural Shows at Sutton, Canterbury, and Norwich.

SALE.

FRIDAY,	June 30	Imported and Established Orchids at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period June 11 to June 17, 1899. Height above sea-level 24 feet.

1899.	Direction of Wind.	Temperature of the Air.				Rainfall.	Temperature of the Soil at 9 A.M.			Lowest Temperature on Grass.
June 11 to June 17.		At 9 A.M.		Day.	Night.					
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.		At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 11	E.S.E.	53·6	50·8	63·9	46·5	..	62·4	59·9	55·2	87·5
Mon. 12	N.N.W.	59·9	55·8	70·7	44·7	...	60·9	59·5	55·5	87·0
Tues. 13	N.N.E.	58·9	51·8	60·8	46·5	...	62·5	59·8	55·6	39·9
Wed. 14	N.N.E.	50·7	46·7	61·1	41·8	...	60·5	59·8	55·6	81·0
Thu. 15	N.N.E.	61·9	53·6	71·4	39·8	...	58·9	58·1	55·9	27·7
Fri. 16	E.N.E.	62·0	53·9	75·2	42·0	...	61·6	59·2	55·9	34·1
Sat. 17	E.S.E.	63·6	57·3	75·5	45·9	...	62·9	59·5	55·9	36·3
Means...	...	58·7	59·8	68·4	44·1	Tot. ...	61·4	59·5	55·7	34·8

Remarks.—The weather has been generally dull, with drying winds from the north and east, with very cold nights.

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—62·4°.

Actual Temperatures:—

London.—*June* 21 (12 P.M.): Max. 73°; Min. 58°.

Provinces.—*June* 21 (6 P.M.): Max. 68°; Min. 54°, Sumburgh Head.

Close, dull; some rain.

Malcolm Dunn Memorial.

It is often said that a man's best memorial is to be found in the work that he leaves behind him. However true that may be as a rule, it admits of many modifications. The case of Malcolm Dunn is one of them. No man worked in his time, and in his way, more indefatigably than he for the advancement of horticulture and forestry, and the welfare of all connected with them. And yet now that his active brain and warm heart are still, what is there to show for all the work he did? Little or nothing! little or nothing, that is, that is tangible. Little or nothing which will appeal to the sympathies of the next generation. We cannot expect that our successors who will know of Malcolm Dunn only as a name, will feel the same sense of a great loss that we do who saw what he did, and what manner of man he was.

Dunn wrote no books—his articles, which were numerous, were always unsigned, he did not advertise himself or seek to further his own interest in any way. He worked for the good of the cause, and that was enough for him. But this reticence on his part only offers an additional inducement to us to do for him and for his memory that which he would not have done himself. A few short years and his name will be only a name, unless we do something to perpetuate the memory of his good works. We have two strong inducements to do this—the one is common gratitude: we are grateful to such a man for all that he did; the other is the recognition of the example he set us. We have our duties to perform, and he has set us an example that we shall do well to follow. Specially we shall do well to do something that will be commemorative—not of the man, that, we are sure, would have been distasteful to him; but of the work that he did, something that will tend in some way or another either to the promotion of the art he loved so well, or to the lightening of the load of pain and trouble that needs must often fall upon its practitioners.

The Societies with which Mr. Malcolm Dunn was especially associated have appropriately taken joint action with a view to do honour to the memory of the man who so disinterestedly exerted himself in all that concerned the welfare of horticulture. The joint committee has issued the following appeal, which it is to be hoped will be heartily responded to:—

"Malcolm Dunn Memorial Fund.

"The news of the sudden death of Mr. Malcolm Dunn, on 11th May, at Dalkeith Palace Gardens, where he had been gardener for nearly twenty-eight years, must have come upon all who knew him as a great shock.

Although a gardener by profession, his interest did not end there. Horticulture, Botany, and Arboriculture are to-day all reaping the benefit of his great energy and devotion.

Looking to this general interest displayed by Mr. Dunn, it has been agreed upon by the Royal Caledonian Horticultural Society, the Botanical Society of Edinburgh, the Royal Scottish Arboricultural Society, and the Scottish Horticultural Association, with all of which he was intimately identified, to unite in issuing a joint appeal to the many friends of Mr. Dunn throughout England, Scotland, and Ireland, for Funds to perpetuate his memory; and it is proposed that, after erecting a suitable monument in Dalkeith cemetery, the balance should be devoted to charitable and educational objects in connection with horticulture and arboriculture.

In issuing this appeal, the councils of the four societies feel assured that there are very many who will gladly join in raising such a memorial as is proposed, and thus testify to their appreciation of Mr. Dunn's worth, and to the kindly help and advice which he so freely gave.

Subscriptions will be received and acknowledged by any of the undersigned, in name of the respective societies, P. Murray Thomson, Secretary, Royal Caledonian Horticultural Society, 5, York Place, Edinburgh; James A. Terras, Assistant-Secretary, Botanical Society of Edinburgh, 21, Teviot Place, Edinburgh; Robert Galloway, Secretary, Royal Scottish Arboricultural Society, 5, St. Andrew Square, Edinburgh; Robert Laird, Secretary, Scottish Horticultural Association, 17, Frederick Street, Edinburgh."

The Shading of Glasshouses.

Now that we have approached the warmest part of the summer, it is a question that each gardener must settle for himself, how much or how little shading is beneficial to his fruit-trees, Vines, Pine-apples, Melons, and Cucumbers under glass. A good deal depends on the construction of the houses and pits, their aspects, the latitude and altitude of the place. That, where sunshine is intense and long-continued, some sort of portable light shading-material benefits the various plants after this date, goes without saying, and should be afforded, say, from 10.30 A.M. to 2.30 P.M., taking it off the glass whenever the sky becomes in the least degree cloudy.

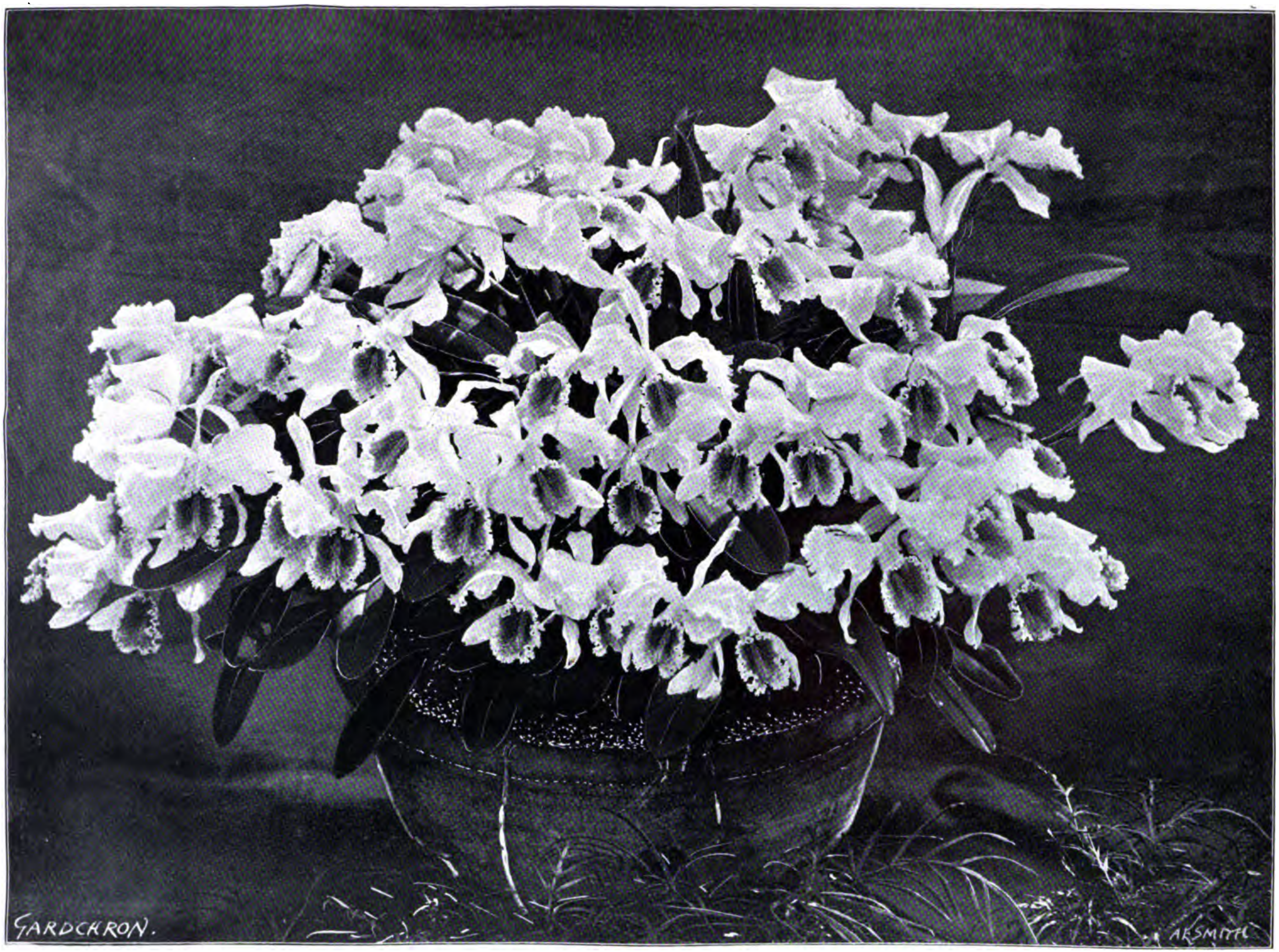
During the prevalence of bright sunshine and the hours of greatest heat, the evaporation of moisture from the plants and from the soil is greatest, and the process is, of course, accelerated by the glass coverings; hence the absolute necessity for repeated damping down of walls and paths, for unless some kind of equilibrium be brought about, the plants cease to grow satisfactorily. We know from experience that shading and damping down may be carried to excess, and it is probably due to this fact that the Melons of the present day are generally deficient in flavour, that Vine foliage is sometimes warty and flabby, and that fungous diseases are common on Tomatos and Cucumbers. We have, each for himself, to discover the happy mean in shading and damping down, for although, apparently, these are matters of great simplicity, they cannot be entirely taught by Calendar or press writers. How often has the writer of this note had to rush away from some important job in the flower garden or kitchen garden, maybe, to put on or take off shading and air in Pine, Melon, and Cucumber and plant-houses and pits, or from the never to be too highly valued contents of the propagating-frames standing on hot-beds!

Vines and Figs will withstand almost any amount of sun-heat that we get in this country—or in Europe, for that matter—if attention be paid to timely ventilation, beginning in summer weather at 7 or 7.30 A.M., by affording what is understood by a "chink of air" at the top of the houses. Much of the scalding of berry and leaf brought to our notice is caused by lack of attention to this one point. During the fitful months of March, April, and May, the risk of scalding is greatest, the foliage being extremely tender, and the bursts of sunshine so erratic that the attention of the gardener dare not be relaxed for a quarter-of-an-hour in the period from 7 A.M. to 3 or 3.30 P.M.

Provided the glass is of a good quality, and the ventilation what it should be, no scalding will occur in a vinery built according to either old or new fashions. Even without damping down it would not occur.

In Pineapple culture in the south and midland counties, scrim-shading should always be used during the hottest weather from the end of May till the beginning of August; less over plants with ripening fruits than over suckers or successions, or plants about to show flower. But in the case of these plants even scrim should not be put on earlier than 10.30 A.M., nor kept on later than 2 P.M., with air given to keep the degree of warmth at about 80° to 90°, according to the age of the plants.

If Cucumbers are grown by the so-called express method—that is, with much heat and moisture, and scarcely any ventilation—the glass is so bedewed with moisture during the day that burning seldom occurs; but where a



Cattleya Mossiæ, with 65 Flowers, from the Collection of Lily, Duchess of Marlborough.

less unnatural system is adopted, a thin shading is of benefit to the plants—as also for Melons, unless the pits or houses are very roomy ones, when shading is better dispensed with, and the temperature regulated as far as need be by ventilation only.

Our experience with Tomatos is, that shading is an evil, as is an over-moist atmosphere in the structure in which the plants are grown. A moderately hot, dry treatment, with not unlimited application of water to the root, suits the plant best; in fact, just that which would breed red-spider in most other plants.

Our old friend, the bast-mat, is not much in use in modern gardens; still, it has its uses. It is handy, if there be no wind to waft it to a distance, for throwing over a plant or batch of plants in flower, or some newly-potted, in a stove or greenhouse, or in hot or cold pits, when perhaps total shading of the structure would be undesirable; otherwise, its value as a shading material has departed, with the blue apron and the head gardener's stove-pipe head covering. As shading for Melon, Cucumber, and Pines, the bast-mat is an abomination. The slat or split bamboo shading, easily applied when fixed to rollers, is one of the best and most enduring of these contrivances.

CATTLEYA MOSSIÆ (see Supplement).—Cattleya Mossiæ is one of the best known and largest-flowered species of the whole genus; it is, however, seldom seen in such vigorous health as shown in our illustration. The plant in question is not a newly-imported one, it having been in the Deepdene collection for several years. It is a very fine, healthy specimen, and measures just over 3 feet across; altogether, there were sixty-six fully expanded flowers. The variety is a very good one, but unfortunately the brilliant colouring of the lip cannot be reproduced by photography. The plant is to be named Cattleya Mossiæ var. Lily Duchess of Marlborough, and to her we are indebted for the opportunity of giving this illustration.

ROYAL HORTICULTURAL SOCIETY.—The next fruit and floral meeting of the Royal Horticultural Society will be held on Tuesday, June 27, in the Drill Hall, James Street, Westminster, 1 to 5 P.M. On this occasion special prizes will be offered for Roses; and at 3 o'clock, a lecture on "Some of the Plants Exhibited," will be given by the Rev. Prof. GEO. HENSLOW, M.A.

—— Exhibition of Hybrid Plants at Chiswick, Tuesday, July 11, 1899. In connection with the International Conference on Hybridisation, the following Awards will be made, viz.:—1. A Veitch Memorial Medal to the raiser of the best new fruit intentionally raised by cross-breeding or hybridisation in Great Britain, and never previously exhibited. 2. A Veitch Memorial Medal to the raiser of the best new flower (Orchids excluded), intentionally raised by cross-breeding or hybridisation in Great Britain, and never previously exhibited. 3. A Veitch Memorial Medal to the raiser of the best new Orchid, intentionally raised by cross-breeding or hybridisation in Great Britain, and never previously exhibited. 4. A Veitch Memorial Medal to the raiser of the best new vegetable, intentionally raised by cross-breeding or hybridisation in Great Britain, and never previously exhibited. 5. A Veitch Memorial Medal to the raiser of the best new fruit, intentionally raised by cross-breeding or hybridisation out of Great Britain, and never previously exhibited. 6. A Veitch Memorial Medal to the raiser of the best new flower (Orchids excluded), intentionally raised by cross-breeding or hybridisation out of Great Britain, and never previously exhibited. 7. A Veitch Memorial Medal to the raiser of the best new Orchid, intentionally raised by cross-breeding or hybridisation out of Great Britain, and never previously exhibited. 8. A Veitch Memorial Medal to the raiser of the best new vegetable, intentionally raised by cross-breeding or hybridisation out of Great Britain, and never previously exhibited. The above Medals will only be awarded should the exhibits be considered sufficiently meritorious, and the result of intentional, not accidental, cross-fertilisation. Exhibitors must give full details in writing as to parentage, and record any other points which may assist the Judges. 9. A Williams' Memorial Medal to the best collection of hybrid and cross-bred plants. *W. Wilks, Secretary.*

HORTICULTURAL CLUB.—At the usual monthly dinner of the Club on June 13, the chair was occupied by Mr. HARRY J. VEITCH, vice-chairman of the Club. The chief business in hand was the arrangement for the dinner to be given to the distinguished foreign visitors who are expected to attend the Hybridisation Conference. The dinner will be given on Tuesday, July 11, and the chair will be occupied by Sir J. D. T. LLEWELYN, Bart., M.P., chairman of the Club.

ROSE SHOW FIXTURES.—Mr. Edward Mawley wishes us to acquaint our readers with the facts that the Rose Show at Newcastle-on-Tyne, will be opened on July 19, that at Liverpool on August 3; and that the date of the Eltham Rose Show is changed from June 29 to July 13.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The sixtieth anniversary festival dinner of the Gardeners' Royal Benevolent Institution will take place on Wednesday next, June 28, at the Whitehall Rooms, Hôtel Métropole, at 6.30 for 7 o'clock precisely, when the Chair will be taken by the Rt. Hon. the Earl of DERBY, K.G., G.C.B.

THE HYBRIDISATION CONFERENCE.—In view of the great importance of the subject, we shall probably commence, in our next issue, a series of notes by various writers, on the development by means of cross-breeding of several of our garden flowers, and a number of portraits of representative men who have been or are instrumental in the improvement of our flowers and fruits by the practice of cross-breeding or hybridisation. The meetings of the Conference will be held at Chiswick on July 11, and on the following day at the Westminster Town Hall.

"FLOWERS AND FLOWER-CULTURE" (The Every-day Help Series). By H. W. WARD (London: Walter Scott, Limited).—The scope of this little book will be understood when it is stated that it is divided into chapters dealing with the flower-garden, bedding-plants, herbaceous plants, the greenhouse, Chrysanthemums, Roses, room and window plants, marketing flowers, bees in the garden, and propagating plants respectively. Mr. WARD has a practical knowledge of his subjects beyond that of most people, and he writes clearly and plainly, and with an appreciation of the requirements of his readers. His guide contains practical hints for the horticulturist, and in many cases the names of the best sorts of plants for special purposes are given. The intention is, evidently, not so much to instruct the experienced professional as to furnish the amateur with useful reminders, arranged in a form convenient for reference, and yet unencumbered with wearisome detail.

PROLIFEROUS ROSE. — Messrs. BRAYLEY & SONS send us an example of prolification in the Rose. The hep or pistil is entirely absent; the sepals, petals, and stamens are normal. In the centre of the flower is a young shoot, terminated by a flower. The case is by no means an uncommon one, but is always interesting to those concerned in the structure of the flower.

THE "FLORA" CHARLOTTENBURG. — The "Flora" Garden, whose existence dates from the "Founding epoch," and which was laid out on the pattern of the establishment of the same name at Cologne, and the "Palmen Garten" at Frankfort, but like the first without succeeding in exercising an effect upon horticulture, and becoming merely a place of public amusement, has been sold for building purposes, and the company dissolved.

DECAYED TWO-YEAR-OLD PINE NEEDLES.—It would at first hand be a poser to say to what particular use decayed Pine needles could be usefully put, beyond being placed in a heap in a moist place or under the shade of trees to still further decay, and be at length converted into leaf-mould. A correspondent, writing in *Gardening*, a horticultural journal published at Chicago, states that he buried some Hydrangeas one foot deep in two-year-old Pine-needles as a protection against frost, and found in the spring, on uncovering the plants, that the Hydrangeas had pushed forth a mass of roots into the heap of Pine-needles. In undecayed needles it may be stated that no plants ever put forth roots; and it would appear that gardeners have in decaying Fir-needles an admirable rooting material in which to layer Rhododendrons, Kalmias, Andromedas, and other evergreen and deciduous plants with the certainty of obtaining good results.

FLOWERS IN SEASON.—We have received from Mr. JOHN GREEN, Norfolk Nurseries, Dereham, some spikes of his new everlasting white Pea, Lathyrus latifolius albus grandiflorus, and which last August was awarded a First-class Certificate by the Royal Horticultural Society; and also last July a First-class Certificate by the Norfolk and Norwich Horticultural Society. The following extract is from the journal of the Royal Horticultural Society, vol. xxii, part 3, page cxlix. "Award of Merit to Lathyrus grandiflorus albus (votes unanimous), from Mr. GREEN, Dereham. A vigorous-growing seedling everlasting Pea, with stout spikes of unusually large pure-white flowers, an exceptionally free-flowering variety." The spikes and the flowers were very fine and of great decorative value, either cut or growing. It is not yet in commerce, but will be sent out as soon as ever sufficient stock can be raised.

A DISCLAIMER.—In a review of LORD DE TABLEY'S *Flora of Cheshire*, C. WOLLEY-DOD is named as a recent contributor to the *Cheshire Flora*. The person intended is not myself, but my son, Major ANTHONY WOLLEY-DOD of the Royal Artillery, who has done a good deal of work in our native Flora. *Charles Wolley-Dod, Edge Hall, Malpas, June* 18, 1899.

RHODODENDRONS IN REGENT'S PARK.—Messrs. JNO. WATERER & Co., Bagshot Nurseries, Surrey, have again this season made an exhibition of Rhododendrons in a marquee in the Royal Botanic Society's Gardens at Regent's Park. On Monday and Tuesday last special invitations to view these abundantly-flowered plants were accepted by upwards of 2000 persons. The site of the exhibition is the same each year, and the beds, some high, some low, and of varying shapes and sizes, are also the same. What variety is introduced, therefore, is due to the manner in which the beds are planted. The site could indeed be hardly laid out to better advantage for such an exhibition, and an effect is obtained from the whole, viewed from any part of the marquee that is a capital advertisement of the beauty and showiness of the Rhododendron. These hardy Rhododendrons have been crossed and re-crossed with each other so many times and in so many ways, that the variety obtained is such that to name each one must entail confusion that in some degree is not necessary. But extra good varieties must be named in order to perpetuate them with certainty, and for commercial purposes. Pink Pearl is one of the very best Rhododendrons, but this novelty did not happen to be in flower. Gomez Waterer is almost as large in the flower as Pink Pearl, the colour being white or palest blush, with bright green spots upon the upper petal. A few other noticeable varieties in the collection were Madame Carvalho, pure white with green spotting; Queen, white, upper petal marked with buff; Kate Waterer, rich clear rose colour, the upper petal having green spots on a white ground; Countess of Tankerville, rose, with a whitish centre; Duke of Connaught, a capital white variety, with yellow spotting, very distinct; Michael Waterer, a bright crimson self; B. W. Elliott, clear rose colour, with deep spotting; W. E. Gladstone and Lady Ellen Cathcart, both rose-coloured flowers; Mum, a white, very free flowerer, producing splendid trusses, and probably one of the best for forcing in early spring; Concessum, rose-coloured with lighter centre; T. B. Hayes, white, with chocolate-red blotch, suggestive of the stains on a Pelargonium; Helen Waterer, bright red with white centre, a fine variety; and Album grandiflorum, white with yellow spotting, an old but valuable variety. The display will soon be past, but is a little later than the show in the Bagshot Nurseries, owing to the retarding effect of moving the plants when in bud, and to the tent protecting the flowers from bright sunshine.

PUBLICATIONS RECEIVED.—From the Michigan State Agricultural College Experiment Station, Bulletin 168, February: *Michigan Fruit List*, L. R. Taft.—Also Special Bulletin No. 11, March: *Frozen Trees and their Treatment*, L. R. Taft.—*Finland*, an English journal, devoted to the cause of the Finnish people. No. 1, June. Edited by C. H. Perrott (offices, 106, Victoria Street, S.W.).—*Halifax Naturalist*, Vol. IV., No. 20, June, contains papers on the Autumn Crocus, by W. B. Crump; Shibden Hall (illustrated), by John Longbottom; a biographical note on the late Henry Thomas Soppitt (with portrait); also as an inset, some pages of the Flora of Halifax, by W. B. Crump.—*Schedule of the Exhibition of British-Grown Fruit* to be held by the Royal Horticultural Society at the Crystal Palace on September 28, 29, and 30 — *Album des Orchidées*, par H. Correvon (Paris: Doin)

PLANT PORTRAITS.

GLADIOLUS QUARTINIANUS SUPERBUS, *Garden*, June 3, 1899. See *Gardeners' Chronicle*, December 31, 1898, p. 467.

SALVIA GONDUTI, Benth.—Flowers crimson, in terminal racemes; *Revue de l'Horticulture Belge*, June.

TREMANDRA ERICOIDES VAR. HIRSUTA, *Revue de l'Horticulture Belge*, June.

TEA ROSE SOUVENIR DE PIERRE NOTTING, raised by Messrs. Soupert & Notting, Luxemburg, from seed sown in May, 1894. The parents are Maréchal Niel ♀, Maman Cochet ♂. Colour of flower golden yellow, with a tender reddish shade upon it. Very free, a vigorous grower, with a long, filbert-shaped bud. Good for forcing, as the second growth reaches a length of 8 to 12 inches. Figured in the *Deutsche Gartner Zeitung*, June 17, 1899.

IRELAND.

DUBLIN WEATHER.

OUR gardeners are complaining they are in want of rain, the tropical weather experienced of late having told severely on all kinds of crops. A change set in a few days ago, and instead of the bright sunshine, we have had an occasional shower, and plenty of dark threatening clouds; but the rain was of too brief duration to be of much benefit to plants, and the expected is deferred. Farmers around Dublin are enabled to forward a large consignment of Potatos to market, the warm weather having told immensely in their favour, and the early arrivals are of a good size and flavour, an unusual occurrence in Ireland.

THE ROYAL HORTICULTURAL SOCIETY OF IRELAND.

The usual monthly meeting of the Council of the above Society was held on Tuesday afternoon, the 13th inst., at their offices, 61, Dawson Street. Major Domvile, J.P., occupied the chair. The following members of the Council were present:—Surg.-General Beaumont, M.D.; Mr. Robertson, J.P.; Mr. D. Ramsay, Mr. H. Smallman, and Mr. W. H. Hillyard (secretary). After the minutes of the last meeting were read and duly signed, the principal item of business before the Council was to settle the pending final arrangements for the forthcoming Rose show. After a brief discussion, the arrangements were completed. The secretary then submitted a list of names with a view to their being elected members of the Society, which was sanctioned.

IRIS BULBS DISEASED.

Two years ago some diseased bulbs of Iris reticulata were sent to the *Gardeners' Chronicle* from Southport for examination, but owing to the material being immature, nothing was done at the time.

During the present season the same disease, occurring on the same host, has been received from two widely separated localities. The parasite is a fungus which forms blackish patches on the surface of the bulb; these patches are at first small in size and few in number, but gradually increase in size and run into each other, when the bulb presents the appearance of having been charred. At first the fungus is quite superficial, and the bulb can be saved if prompt measures are employed; finally, however, the mycelium of the fungus permeates throughout the tissues of the bulb, which soon decays.

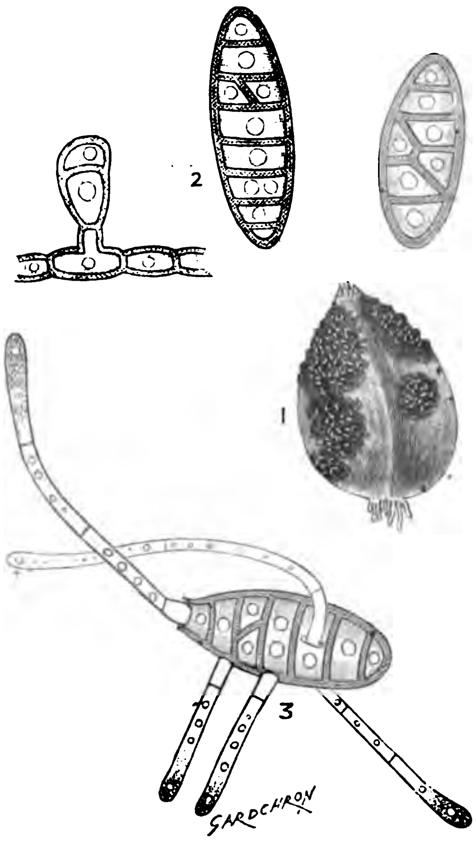


FIG. 150.—DISEASE OF IRIS: MYSTROSPORIUM ADUSTUM.

1, Bulb of Iris reticulata, diseased; nat. size.
2, Spores in various stages of development, × 400.
3, Spore germinating, × 400.

If a fragment of the black crust is examined under a microscope, it is seen to consist of brown, much branched, interwoven hyphæ, bearing myriads of very large, dark-brown spores, borne singly at the tips of short, lateral branches.

Preventive means.—If only superficially attacked, soaking in a solution of one part formalin to 400 parts water for one hour, will destroy the fungus without at all injuring the bulbs. Bulbs that are badly attacked should be burned, and as the black crust breaks away readily from diseased bulbs and remains in the ground, it would not be wise to use such infected ground for bulbs for some time to come.

The following is a technical description of the fungus which proves to be an undescribed species, allied to—

Mystrosporium alliorum, Berk., a parasite on cultivated Onions; the latter, however, differs in the smaller, minutely-warted spores.

Mystrosporium adustum.—Maculis crustaceis, indeterminatis, facile secedentibus, colore nigro; hyphis in fasciculos densos congestis, septatis, ramosis, fuscis, hic illic inflatis; conidiis solitarie acrogenis, elliptico-fusoideis, 5—7 septato-muriformibus, ad septa non constrictis, umbrino dein opacis, glaber, 46—60 × 20—22 μ. *Geo. Massee.*

THE DARWIN STATUE AT OXFORD.

A LIFE-SIZED statue of Charles Darwin by Mr. Hope Pinker, presented to the University of Oxford by Professor Poulton, Hope Professor of Zoology, was unveiled at the University Museum on the 14th inst., and Sir Joseph D. Hooker delivered an address upon the occasion.

Sir Joseph Hooker said the fact of their having commenced their scientific careers under very similar conditions favoured the rapid growth of a bond of friendship between Mr. Darwin and himself. We both of us, he continued, immediately after leaving our respective Universities, commenced active life as naturalists under the flag of the Royal Navy; he as a volunteer eight years before me, who was an official. We both sailed round the world, collecting and observing often in the same regions, many of them at that time seldom visited and since made accessible to science by his researches—the Cape Verd Islands, St. Helena, Rio, the Cape of Good Hope, the Falkland Islands, Terra del Fuego, Tasmania, and New Zealand. On returning to England we both enjoyed the rare advantage of the counsel and encouragement of one of the greatest leaders in science of the time—Mr., afterwards Sir Charles, Lyell.

The *Journal of Researches into the Natural History and Geology of the Countries Visited during the Voyage of the Beagle*, was then passing through the press, and the proof-sheets lent to me for perusal, because I was then preparing to accompany Sir James Ross as a naturalist on the Antarctic expedition (1839-42). At that particular time I was engaged in engrossing hospital duties, and I slept with the proofs under my pillow, that I might at once, on awaking, devour their contents.

Shortly after the arrival of the Antarctic expedition (in 1843), I received from Mr. Darwin a long letter, warmly congratulating me on my return, directing my attention to the importance of correlating the flora of Fuegia with those of the Cordillera, and of Europe, and inviting me to study and publish the botanical collections which he had made in the Galapago Islands, Patagonia, and Fuegia.

VISITS TO DARWIN AT DOWN.

This led to an interchange of views on the subject of geographical distribution, followed by an invitation to visit him at what he used to call his inaccessible home at Down, which was then eight or ten miles distant from the nearest railroad station. This I joyfully accepted; and then commenced that friendship which ripened rapidly into feelings of esteem and reverence for his life, works, and character that were never clouded for one instant during the forty subsequent years of our joint lives. During the many visits to Down which followed, he laid before me without reserve, not only his vast stores of knowledge, but his mature and immature speculations and theories, describing how they originated, dwelling on their influence on the progress of his researches. Among these, so long ago as 1844, was his sketch of *The Origin of Species*, which I was the first to see of the few friends to whom he ever showed it. At that very early period of my own studies I failed to grasp its full significance.

On the occasions of many other visits it was Mr. Darwin's practice to ask me, shortly after breakfast, to retire with him to his study for twenty minutes or so, when he brought out a long list of questions to put to me on the botanical subjects then engaging his attention. These questions were sometimes answered offhand, others required consideration, and others a protracted research in the herbarium, or in the gardens at Kew. The answers were written on slips of paper, which were deposited in bags or pockets that hung against the wall within reach of his arm, each of them a receptacle devoted to a special object of enquiry. To me this operation of "pumping," as he called it, was most instructive. As his health fluctuated or declined, and especially during his sharper attacks of illness, these interviews became intermittent, and on such occasions he would ask me to bring my own work with me to Down, where I pursued my studies free from the distractions of Kew, and with the advantages of his counsel and aid whenever desired. These morning interviews were followed by his taking a complete rest, for they always exhausted him. These attacks were followed by a period of what with him was the merest approach to health, and always to activity. Shortly before lunch I used to hear his mellow voice under my window, summoning me to walk with him, first to inspect the experiments in his little plant-houses, and then to take a precise number of rounds of the "sand walk," which he trudged with quick step, staff in hand, wearing a broad-brimmed straw hat and light shooting-coat in summer, and a felt-hat and warm cape in winter. This walk was repeated in the afternoon; on both these occasions his conversation was delightful, animated when he was well enough, never depressing however ill he might be. It turned naturally on the scenes we had witnessed in far-away regions, on anecdotes of our sea-faring lives, and on the discoverers in science, then, as now, hurrying onwards, and treading on one another's heels in their haste for recognition. In the evening we had books and music, of which latter Mr. Darwin was during the first few years of our friendship, almost passionately fond; it is a curious fact that music should have had in after life no charm for him—that "it set him thinking too energetically at what he had been at work on instead of giving him pleasure."

If I were asked what traits in Mr. Darwin's character appeared to me most remarkable during the many exercises of his intellect that I was priviledged to bear witness to, they would be, first, his self-control and indomitable perseverance under bodily suffering; then his ready grasp of difficult problems; and, lastly, the power of turning to account the waste observations, failures, and even the blunders of his predecessors in whatever subject of inquiry. It was this power of utilising the vain efforts of others which in my friend Sir James Paget's opinion afforded the best evidence of Darwin's genius. Like so many men who have been great discoverers, or whose works or writings are proofs of their having intellects indicating great originality, he was wont to attribute his success to industry rather than ability. "It is dogged that does it," was an expression he often made use of. In his autobiography he says of himself—"My industry has been nearly as great as it could have been in the observation and collection of facts;" and, again, "of the complex and diversified mental qualities and conditions which determined my success as a man of science, I regard as the most important the love of science—unbounded patience in long reflecting over many subjects—industry in observing fact, and a fair share of invention as well as of common sense." In this introspection he has, if my judgment is correct, greatly undervalued "invention;" that is, originality or that outcome of the exercise of the imagination which is so conspicuous in every experiment he made or controlled, and in the genesis of every new fact or idea that he first brought to light. Referring to his disregard when possible of his bodily sufferings, I remember his once saying to me that his sleepless nights had their advantages, for they enabled him to forget his hours of misery when recording the movement of his beloved plants from dark to dawn and day-break. For those other qualities of head and heart that endeared Mr. Darwin to his friends, I must refer you to the *Life and Letters*. There is only one upon which I would comment, it is that passage of his autobiography where he says, "I have no great quickness of apprehension or wit." Possibly the "of" and "or" are here transposed; whether or no, my impression of his conversation has left the opposite as characteristic of him. It is at any rate inconsistent with the fact that in arguing he was ever ready with repartee, as I many times experienced to my discomfiture, though never to my displeasure; it was a physic so thoughtfully and kindly exhibited. And I may conclude these fragmentary records with an anecdote which goes, I think, to support my view, and which I give, if not verbally correctly, as nearly as my memory of so ancient an episode permits. I was describing to him the reception at the Linnean Society, where he was unable to be present, of his now famous account of "The two Forms or Dimorphic Condition of Primula," for which he took the common Primrose as an illustration. On that occasion, an enthusiastic admirer of its author got up, and in concluding his *éloge* likened British botanists who had overlooked so conspicuous and beautiful a contrivance to effect cross-fertilisation to Wordsworth's "Peter Bell," because—

"A Primrose on the river's brim,
A yellow Primrose was to him,
And it was nothing more."

When I told Mr. Darwin of this he roared with laughter, and, slapping his side with his hand, a rather common trick with him when excited, he said, "I would rather be the man who thought of that on the spur of the moment, than have written the paper that suggested it." *Condensed from the Times.*

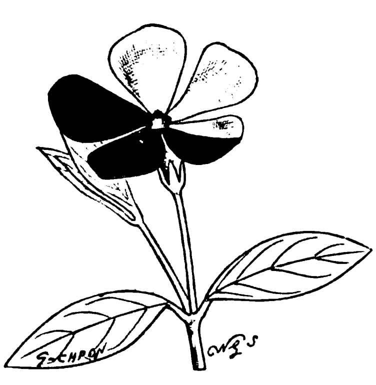


FIG. 151.—A HYBRID VINCA MINOR.

A HYBRID VINCA.

IN the old vicarage garden of Totternhoe, near Dunstable, are beds of Vinca minor, in the two varieties of deep violet and white. Amongst these two forms is a single plant with parti-coloured flowers, white and violet, herewith illustrated (fig. 151). This plant appears to be either a natural hybrid brought about by insect agency, and therefore remarkable in Vinca, or a half reversion of the white form to the original violet condition. *W. G. S.*

LAW NOTES.

JOHN SHAW *v.* R. H. HOMAN.—LANDSCAPE GARDENERS' PLANS.

AT Manchester County Court on Friday, before his Honour Judge Parry, Mr. John Shaw, F.R.H.S., landscape gardener, Ashley Road, Altrincham, sought to recover the sum of £3 3*s.* from Mr. R. H. Homan, a Manchester merchant, for plans prepared by his orders. The defence was that the plans were prepared only in competition with others, but his honour held that defendant in his letter to the plaintiff never stated that such was the case. It should have been distinctly stated that he was competing with others. He therefore gave judgment for the amount claimed, with costs.

THE STAMENS OF ORCHIDS.

MOST people, nowadays, know that the single stamen of the majority of Orchids, or the pair of stamens in Cypripedium, are the only representatives of a group which did contain, or is supposed to have contained, six members. Then, for reasons of convenience, four or five of the stamens were dropped, and the flower assumed an irregular form, instead of the regular shape it had in the first instance. Traces of the missing stamens are often visible, whilst the minute microscopical anatomy of the flower reveals traces of their existence in almost all cases. We have had the good fortune before now to see all six stamens in Odontoglossum crispum; but in the flower of which we now give an illustration (fig. 152) there are but three. The specimen sent to us was grown in the collection of Sir F. Wigan (gr., Mr. Young). All the flowers on the raceme were thus affected, one flower even had four stamens.

HOME CORRESPONDENCE.

UTRICULARIA CAPENSIS.—Plants of this minute little gem were recently found growing in a pot with Disa grandiflora, a number of which were imported from South Africa by Mr. W. Goodliffe, of Cambridge Nurseries, Worthing. Although it appears to spread freely, it could only be found in one pot out of about half a dozen. Examined by the naked eye it is not very attractive, but placed under a powerful lens a most perfect and beautiful flower is revealed, the base of the flower and hood being white, shaded with yellow. The lip is of a rich purple; there is also a band of the same colour round the margin of the hood (or upper petal), and the whole surface of the flower studded with minute crystal globules. A plant of this interesting little gem was staged at the recent Temple Show, and although the smallest exhibit there it was not the least interesting, a fact fully attested by all who had the opportunity of examining it under a magnifying glass. *A. H.*

THE SHERWOOD CUP.—Certainly it is in no sense prejudging the event to say that Mr. E. Beckett has practically won the fine cup which Mr. Sherwood placed at the disposal of the council of the Royal Horticultural Society for competition, with collections of vegetables, at the Drill Hall. That failure in securing competition was predoomed because of the conditions of the class was certain from the first. Still, absolute failure was not expected in securing fine productions, for Mr. Beckett's grand collection of fifty-three dishes of vegetables never has been equalled, much less excelled, by anyone at this time of the year. So far something has been gained that we have seen, thus finely illustrated the capacity of the British gardener to grow splendid vegetable produce, and thus make an exhibit that of its kind was by far the finest in the Drill Hall on the 13th inst. Still more the products showed the fine quality we have in vegetables even in June. When the next scene of the little play is enacted, which will be on September 12, Mr. Beckett will again be the sole representative, as by reason of failure to appear on the 13th inst., all other persons are debarred from competing. Putting up collections of fifty dishes, and without a single dish of inferior stuff, is a task that few will essay. Besides inviting in the competition unlimited collections, there was the drawback that only one prize was offered, and as only one could win it, no doubt vegetable growers were willing to allow a walk over. Not that with competition do I think anyone could have beaten Mr. Beckett in June; but in September, with collections of say twenty dishes, quite enough for any prize, the competition might have been very keen. But in August and September our leading vegetable growers have strong attractions elsewhere, very liberal and many money and cup prizes being offered all over the kingdom, and in no case probably for more than twelve dishes, and in very many for nine and six dishes only. In such cases competition is plentiful and keen. *A. D.*

KILLING AMERICAN-BLIGHT.—Mr. Moody Bell's use of a painter's-lamp for the purpose of destroying American-blight on Apple-trees seems to be employing a rather costly instrument. Some years ago, when Apple-trees were much infested with clusters of the Lackey-moth caterpillar, I employed paraffin with rapid effect, by fixing pieces of cotton-rag on the point of a long stick, dipping them into paraffin, setting them alight, then rapidly igniting or scorching out the clusters of caterpillars. Not a leaf seemed to be injured. Would not a similar appliance, run rapidly over the stems of infested trees, be equally as destructive of the woolly aphis? But after all, does this pest give much trouble to trees that are annually coated over, as far up the stems and branches as can be, with a pasty liquid of soft-soap, lime, and soot, and a little size? Such a combination laid on thickly kills the pests by literally enclosing them from air. Trees treated in this way always seem as free from insect pests as they are of moss or other vegetable parasites. I have observed that trees so treated, when they shed their dressing of this nature during the season, invariably present smooth, clean stems, void of broken or abrased bark. It is in the interstices of the bark that the woolly aphis finds a congenial habitation, and the less of these interstices or broken places found on trees the less relatively are insect pests generally. Such troubles are left to be dealt with after the trees have foliaged, when it is always more difficult to do so, although the pests are then most noticeable. Thorough washing of the trees in the autumn with almost boiling-water, followed by coatings of the solution named, would be most effective destroyers. *A. D.*

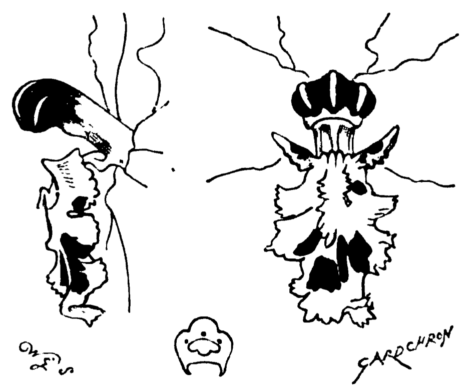


FIG. 152.—COLUMN OF ODONTOGLOSSUM CRISPUM.

(Showing three stamens instead of one only. Front view to the right, side view to the left.)

HOT-WATER, MEALY-BUG, AND MILDEW.—During my term of seven and a half years under the late Mr. Thos. Terry, gardener to Lady Giles Puller, Youngsbury, Ware, Hertfordshire, there were two very large plants of Stephanotis floribunda on wire trellises, which, with the pots, were six feet in height, and two large plants of Dipladenia amabilis, and one of Cyrtoceras reflexum, greatly infested with mealy-bug. On reference to my diary, date Jan. 17, 1857, I find that the gardener took the Stephanotis off the trellis, rolled up the trailing shoots in a coil, and then plunged them in a copper of boiling water, taking them out instantly. The plants were entirely killed as far as the water touched them, but to the surprise of everyone present, the mealy-bug came out untouched. The Cyrtoceras shared the same fate; the Dipladenias came out with the mealy-bug unharmed. The trellises were afterwards washed with Gishurst Compound, and hung on trees in the shrubbery till required the following spring; the mealy-bug was then still alive. Petroleum and other insecticides now in use were unknown; it was all picking and sponging, which after all are the safest and surest methods. For mildew on Vines the best remedy is to take ½ lb. of flowers-of-sulphur, mix into thin paste as you would mustard, then add 4 gallons of clean water, well stirring it together, and standing it in the house where it is to be used for twelve hours, that is, till quite clear; in the morning ladle-out all the clear water into other vessels without disturbing the sulphur lying at the bottom, and syringe therewith the Grapes and foliage, or whatever is affected. This is a safe cure, and leaves no stain on berry or foliage. I consider hot water a dangerous remedy. I should think as bad as using a pan of burning sulphur. *Thos. Godfrey, Hillingdon.* [Mr. Mallett, who recommended heated water for destroying mildew and mealy-bug, did not say that he used it at the boiling-point—212°, Fahr., but something less than that, say, about 180°; neither did he dip his plants into a "copper of boiling water," a proceeding which the most inexperienced gardener would know to be dangerous to plant life. He stated that the water was applied by means of a syringe; and in its transit from one place to another, and passage through the air when driven out of the syringe, it would be greatly robbed of its heat. Ed.]

FANCY PANSIES.—As "R. D." has told so clearly the story of the introduction of the Fancy Pansy into Britain, no doubt renewed interest will be felt in these beautiful hardy flowers, for of their size as plants we have very few that produce such grand blooms, so superbly marked, and coloured as Fancy Pansies do. I am induced because of this to ask for information, as to whence come into market at this time of the year in such immense numbers, such grand-flowered plants as are seen everywhere offered for sale. Do they come from across the Channel, or are they grown at home? and if the latter, are they raised from home-saved seed, or from imported seed? Also under what conditions is the seed sown and at what time, and how are the plants grown to produce such robustness and such giant and brilliant flowers? No strain anywhere gives finer, few give so fine; whilst I see plants of this description freely purchased and planted, yet I do not observe that they seem to have long lives. Does this arise from the changed conditions of culture to which subjected? are they grown during the winter in cold frames, and on very rich soil? If that be so, their robust character is explained, as is also the fact that after being planted in garden-soil for a few weeks, they seem to do so indifferently. Still, that the plants come from a grand strain there can be no doubt, and it may not be far wrong to assume that to induce them to thrive in gardens, it is needful to furnish them with culture somewhat similar to what they have enjoyed in the market-growing establishments. *A.*

A QUESTION.—Your correspondent "J. C.," at p. 400, laments the absence from modern gardens of certain flowers which were favourites of his, fifty years ago. He is also surprised that he does not see them offered in trade-lists. Having myself been familar with those plants half a century ago, I can sympathise with him, though we have much compensation in the possession of recent additions to our garden plants. I think, too, I can explain, if not justify, the disappearance of our old favourites. As botanists we can but remember with interest the charming little plant Yellow Violet, introduced by Mr. Veitch forty-five years ago, but we have now the more showy and more easily-cultivated yellow Violas for beds and borders. The "Double Walls" of those days were propagated only by cuttings, but now very fine Double Wallflowers are raised more easily and abundantly from seed, though I confess to a preference for the more compact and natural appearance of the plants we raised from cuttings. I do not remember the black-flowered Delphinium, but we see now a great variety of dark purple, indigo-blue, and brilliant light blue, all raised easily from seed. But "J. C." says, where are now the Hyacinths, Double Purple-Green Tips, Double Red Green Tips, and Double White Green Tips which, he says, he used to obtain of the late Mr. John Sutton, which I can quite believe, as this was my father, with whom I was then in partnership (fifty or sixty years ago), and I well remember the pretty Hyacinths he reminds me of, and which could still be procured in the trade if ordered. The disappearance of these old favourites is accounted for by the fact that the present day demand is for the most showy and the most free-growing of flowers for beds and borders, and the nurseryman or florist finds it to his interest to cultivate and advertise those things which best meet the public demand. It is now more than ten years since I retired from the business firm of Sutton & Sons, but the interesting enquiry of your correspondent, "J. C.," tempts me to offer a few notes to the *Gardeners' Chronicle*, with which I have corresponded from its foundation, fifty-eight years ago. *Martin Hope Sutton.*

PROSPECTS OF THE FRUIT CROPS IN SHROPSHIRE.—There is every prospect of an abundant crop of most kinds of fruit this year in Shropshire, with the exception of Plums and Damsons, and in some parts, Gooseberries. In some districts the crops of Gooseberries are very good, and in others almost a total failure, owing to the severe frosts experienced in spring. The Plum and Damson-trees were heavily laden with blossoms in spring, and gave promise of abundant crops of fruit; but the cold spring proved too much for them, and we may say there is generally a total failure. I have visited many parts of Shropshire, and only very locally could anything worth calling a crop be found; the fine gardens at Sundorne Castle, so ably managed by Mr. Phillips, the head gardener, being one of these exceptions. Here, Plums upon the walls are an abundant crop. The Apricots and Peaches—the latter especially being heavily laden with fruit; in fact, fruit of all descriptions will be very plentiful. This county is noted for its Damsons, and in good years the crop is a valuable one especially to cottagers, and the disappointment is great this year, as there was such an early promise of abundant crops. The trees also are terribly infested with the Plum-aphis, which curls up the leaves, causing crippled growth and otherwise injuring the trees. Apples and Pears are much above the average; Strawberries also are a very abundant crop, notwithstanding some of the first blossoms were destroyed by the early frosts of spring. The glorious rains we are now having will do much to secure fine fruit and a continuous supply. *A. Gaut, Shrewsbury.*

Obituary.

THE LATE J. CRAGG.—As gardener to the late A. Heine, Esq., the deceased was well known as a thorough good all-round man, a capital hand with bouquets, vases, and table-decorations, very successful with Orchids—at one show, if my memory serves me aright, he carried off every 1st prize in the open and amateur classes at Old Trafford, when competition was keener than is the case at the present time. He was a good Chrysanthemum grower and exhibitor, and had excellent taste in forming groups of plants for effect. I ever found him a pleasant companion, and a most unselfish and kind-hearted neighbour. My mind runs over those connected with some of the big shows at Old Trafford long ago, and of that number Messrs. T. Baines, W. Cole, W. Milford, G. Toll, T. Hubberstey, J. Jones, A. Beesley, G. Beddoes, B. Findlay have all passed away, the greater number, comparatively speaking, in middle age, some scarcely that; and to the number we may now add J. Cragg, who, after about fifteen years' service at Birchfield, has succumbed at the age of forty-six years. *W. Swan.*

PETER DRUMMOND.—Only a fortnight after attending the funeral of the late Mr. Kelway, occurred the sudden death at the age of sixty-six, of Mr. Peter Drummond, who had been foreman at the Langport Nurseries of Messrs. Kelway & Son for a period of twenty-six years. As a testimony to the character of the deceased gardener, we reproduce the following appreciative description of him by the firm itself—

"Mr. Drummond's death has been a severely-felt loss to us; we mourn a man of forceful intellect and inventive mind, a most clever cultivator, a charming personality, a devoted friend, and most faithful servant."

Mr. Drummond's father, writes Mr. Croucher, our valued correspondent at Ochtertyre, N.B., was gardener at this Scottish domain from 1842 to 1857, and was Mr. Croucher's immediate predecessor. The gardener there previous to Mr. Drummond remained over fifty years. Accordingly there have only been three gardeners at Ochtertyre since the year 1790. Ochtertyre is the residence of Sir P. K. Murray, Bart.

JAMES ANDERSON.—We regret to have to announce the death of Mr. James Anderson, who expired at Glasgow on June 16, at the age of sixty-seven years, after an illness extending over some eighteen months. Mr. Anderson was well known as having been gardener for many years to T. Dawson, Esq., Meadowbank, Uddingstone, N.B., where there was one of the finest collections of Orchids of the time, and in which many that are still held in high esteem made their first appearance, and notably Odontoglossum × Andersonianum and Lælia anceps Dawsoni. Mr. Anderson was a very successful cultivator, and also exhibited some very remarkable specimens, securing the very rare honour of the Lindley Medal, and many other awards. After Mr. Dawson's death, Mr. Anderson established himself near Glasgow as a landscape gardener and horticultural expert, but soon removed to the neighbourhood of Manchester, and many gentlemen availed themselves of his services as an adviser in gardening matters. He was also employed on the Epping Forest Commission, and was for many years a valued correspondent of this journal. The deceased was for the period of its short existence editor of the *Northern Gardener* at its commencement in Edinburgh, and later at Manchester. He also brought out a bulky work entitled *The Practical Gardener.*

NURSERY NOTES.

KNAP HILL NURSERY IN JUNE.

To anyone interested in Rhododendrons and Azaleas, one can imagine no better day of education and pleasure combined than a visit to the Knap Hill Nursery during the early days of June. There is not, I suppose, within the three kingdoms a place where so large an area is covered with Rhododendrons, not merely stuff for selling by the hundred, but magnificent specimens, some of which in their height and spread of branches, as well as in the thickness of their stems, may rank as small trees. As the nursery is approached from Woking Station, a foretaste of the feast of colour is obtained from the high road, whence glimpses can be caught, low in the distance, of great stretches of Rhododendrons in bloom—a scene not only very beautiful, but peculiarly striking, set, as it is, amidst the meadows and hedgerows of pastoral Surrey. When the nursery is reached there is seen stretching away through it a straight avenue, close upon a mile in length, bordered for the most part by towering masses of Rhododendrons, among which the variety album elegans is prominent in huge bushes 15 feet or so high. From this avenue we make incursions on either side, traversing quarter after quarter of the nursery, still of the finest varieties of Rhododendrons in full bloom, till we are almost bewildered by the glowing masses of colour that close in on every side. Purple of various shades is still the prevailing colour among garden Rhododendrons, but here there is every range of colour, from pure white to vivid crimson. Although some of the purples are of a distinctly blue shade, pure blue is, of course absent, just as pure yellow is.

As is well known, a great proportion of the best varieties of garden Rhododendrons originated at Knap Hill, the present head of the establishment, as well as his father and great uncle before him, being all enthusiastic breeders of new varieties. One thing to which the Waterer Rhododendrons owe their great value, is the strong strain of R. catawbiense blood that runs in them; this shows its influence especially in a greater hardiness and finer foliage than can be claimed for those in which R. ponticum preponderates. One of the most interesting plants in the nursery is the original specimen of R. catawbiense (now a huge bush), to which so many varieties owe their origin in greater or less degree. How many hundreds of thousands of plants own kinship to this one plant! But however fine the varieties that have already come from this nursery, there are others still finer which have not yet been sent out, or even named. As one threads his way amidst the labyrinth of Rhododendrons, Mr. Waterer keeps on pointing out new sorts still unchristened, which, in size of flower and truss, in vigour of foliage and habit, in richness of colour and marking, are still better than the best of those that have gone out into the world.

The same progress is being made among the deciduous so-called "Ghent" Azaleas. Just as Rhododendrons, where they thrive, are first among flowering evergreens, so are Azaleas among deciduous hardy shrubs. In the quarters where the selected seedlings are congregated, there are some marvellous flowers to be seen. A great advance has been made in the size and substance of the blossoms, some of which are now over 3 inches across. One, an almost pure white, was especially noteworthy, with flowers large enough to recall a Lily; but in the scarlet, yellow, orange, and crimson varieties also, the difference between their flowers and those of the original species from which they have been derived is remarkable. A new and interesting race is being obtained by crossing the late-flowering American species—A. occidentalis—with the garden varieties; this new race not only extends the flowering season of the Azaleas, but the lateness of the flowers allows of the better development of the young leaves, and so every truss has its beauty enhanced, nestling as it does among the tender green foliage.

Although the Rhododendrons and Azaleas, at this season especially, claim our attention most, they occupy only a part of the nursery, covering as it does some 500 or 600 acres, most of which are occupied by trees and shrubs, or being prepared for them. There is, in consequence, a splendid stock of hardy woody plants, which strike one chiefly on account of their superb health, and the uniformly high rank the species and varieties hold among trees and shrubs. There never was a keener or, indeed, a more exacting judge of a plant than the late Mr. Anthony Waterer. Nothing but what was best and hardiest could pass muster with him, and his favourable verdict was as good as any first-class certificate in the world. He never grew a thing merely to sell. It had to fulfil his requirements before it found a permanent place in his nursery.

The consequence of this is, that if a tree or shrub is seen in quantity at Knap Hill, that may be taken as a guarantee of its value. I have never seen the Blue Spruce (Picea pungens glauca or argentea) in such quantities, or more finely coloured, than here; and what adds to their value, as those who have had experience with grafted Conifers will know, is that they are all on their own roots—that is, selected seedlings. Another finely-coloured tree is the golden-leaved Elm, of which a large breadth is at its best.

The Yews are represented by innumerable specimen plants of the golden-leaved sorts, among which the variety elegantissima, with its graceful habit and distinctly-marked foliage, is prominent. A new variety, called semper-aurea, which is said to remain golden all the year round, was pointed out. A commendable mode of culture is practised with the Irish Yews; they are kept to one main stem, and thus the tying up that is so frequently necessary with Irish Yews, especially after stormy weather, is avoided.

One of the most interesting parts of the nursery is that which surrounds the old dwelling-house, and which, I believe, was the nucleus of the nursery. Here are planted some specimens of various Conifers, no doubt among the first of their kind ever introduced. A glorious specimen of Douglas Fir of the best Colorado form is (at a guess) 70 feet high, and perfectly furnished from its lead down to the branches that sweep the smooth lawn on which it stands. There are also noble specimens of the Maidenhair-tree (Ginkgo biloba), Red-wood (Sequoia sempervirens), Araucaria imbricata, &c. Not far away is an enormous tree of the Weeping Beech, spreading out its great tent-like mass of foliage. The Knap Hill nursery has long been famous for its Wistarias; the white variety, the double one, and the type of W. chinensis are here to be seen clambering over Laburnum and Pine. With the Laburnum especially the effect is charming, for, flowering together, the purple and yellow racemes intermingled make a striking combination. The fine, large-leaved Vine that colours so magnificently in autumn, and which is V. Coignetiæ or near it, is now in flower, but the plant is male. A large spreading tree of the golden variegated Chestnut (Castanea sativa aureo-marginata) is a striking feature, not only because of its size, but also for the richness and uniformity of its colour. A beautiful tree is the cut-leaved Beech (var. heterophylla or asplenifolia), here represented by a large and perfectly-proportioned specimen. Among scarlet Horse - Chestnuts, although nearly past, the variety Briotii might still be recognised as the best. The past season has been a good one for Lilacs, and although nearly over, Souvenir de Louis Späth stood out as the best dark-coloured one, as did Marie Legraye among the whites, and Madame Lemoine among the doubles. Finally, there may be mentioned two members of the Erica family which thrive here admirably. The one is the "Sorrel Tree" (Oxydendron arboreum) 20 to 25 feet high; the other being the dwarf and rare Epigæa repens, a most difficult plant at times to suit, but luxuriating here in moist soil on the shady side of a group of Rhododendrons.

The nursery is thrown open to the public during the Rhododendron season, and is visited by thousands; in fact, the flowering of the Rhododendron and Azalea appears to be somewhat analogous in the Woking district to the flowering of the Cherry near Tokio near Japan, where every man, woman, and child, makes it the excuse for a holiday. *B. Q.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

June 13.—*Present:* Dr. M. T. Masters (in the chair); Mr. Veitch, Rev. W. Wilks, Rev. C. Wolley Dod, Prof. A. H. Church, and Rev. Prof. G. Henslow, Hon. Sec.

Panax Mastersianus.—Dr. Masters exhibited a flowering spray of this plant, which appeared to be all male, which probably came from New Guinea. It has never been thoroughly described hitherto, as no flowers had been seen. Dr. Masters undertook to examine them and report upon them.

Cattleya Mossiæ.—He also exhibited a blossom of this Orchid strangely malformed, which he also undertook to examine.

Lilac with Central (Terminal) Bud Aborted.—He brought sprays to show the presence of this bud lying between two opposite fully-formed buds. It is said to be always aborted by frost; but as it is invariably the case, it would be more likely to be atrophied, in consequence of all the nourishment being conveyed to the two opposite buds.

Hemerocallis leaf diseased.—Dr. Smith reports as follows upon leaves sent to the last meeting:—"The reddish spots on leaf sent are caused by a fungus. Each spot is ¼ to ⅛-inch diameter, and consists of a patch of cavities (pycnidia) sunk in the leaf-tissue. From these tiny conidia are given off to disperse the fungus. In addition to the internal pycnidia, another form of pycnidium is formed on the surface, when a portion of the leaf with spots is kept in a moist chamber these latter also give off tiny conidia. The forms of pycnidia and their structure refer the fungus to the genus Asteroma. Farlow, in his *Host Index for U.S. America*, gives a form Asteroma lineola, the pycnidial stage of Dothidea lineola. The ascospore or Dothidea stage is not present, as far as I can see, on leaf sent."

Diseased Peach.—The following is also Dr. W. G. Smith's report:—"The fruit sent showed a large patch of fungus mycelium with conidia. Two forms of conidia occurred, by which the rot might be referred either to black spot disease (Cladosporium carpophilum), or the fruit rot (Monila fructigena). In transit the fungus spot appears to have enlarged enormously, and it looked quite unlike what one generally sees in either of the above Peach diseases. In any case it is a distinct fruit-rot, and controllable by spraying methods."

Peridermium Plowrighti (Kleb).—The following communication was received from Dr. Plowright, with illustrative specimens:—"The specimens of Peridermium sent herewith were produced by artificial culture, and afford an illustration of how easy a matter it is to unravel a mystery when one once has the clue to it. It is just twenty-five years ago since Wolff showed that Coleosporium senecionis was connected with Peridermium pini on Pinus sylvestris. This Peridermium is frequent upon the Fir-trees near King's Lynn, so that I had ample opportunity of confirming Wolff's observations. As a matter of fact, between the years 1881 and 1888, on ten separate and distinct occasions, I did apply the spores of Peridermium pini to Senécio vulgaris. Once, and once only, did I succeed in producing the uredo on the last-named plant. My non-success I attributed to some error in manipulation, and as I was engaged with other species, I did not follow the research up. Dr. Klebahn, of Hamburgh, however, set about the problem, and soon cleared the matter up. He showed that the species of Coleosporium had their æcidiospores on Pinus sylvestris, and not C. senecionis alone. The species on Tussilago Farfara, which is exceedingly common all over England, was one of the forms to which Dr. Klebahn directed his attention, and he gave the above name to its æcidiospores. The specimens sent herewith were produced by artificial culture. On October 16, 1898, a leaf of Coltsfoot, with the teleutospores of Coleosporium tussilaginis abundantly upon it, was fastened upon young Pinus sylvestris; on February 20 suspicious spots began to show, but it was [not] until April 22 that an abundant development of the Peridermium was observed. On that date the Coltsfoot leaf was still attached to the Fir, and the most abundant development of Peridermium was seen to be immediately beneath it. As this experiment was performed some 3 miles from my house, the plants were not visited so often as they otherwise would have been. On April 25 two young plants of Tussilago Farfara were infected with the above æcidiospores, and on May 13 each was found to be abundantly affected with the uredo of Coleosporium Tussilaginis; they were gathered, and are also sent herewith. I have to thank Mr. Walter Scott, of the Golden Ball Nurseries for the material employed in these cultures, and Mr. Rodgers for his assistance in looking after the plants."

Experiment No. 1243.—Coleosporium Tussilaginis placed on a young plant of Pinus sylvestris (infecting): Material wired on to the tree October 16, 1898; Spermogonia observed February 20. Peridermium Plowrighti abundantly produced and fully developed April 22, 1898.

Experiments 1264, 1265.—Two young plants of Tussilago Farfara, infected on April 25, 1899, with æcid spores of Peridermium Plowrighti from Experiment 1243, perfect uredo gathered May 15.

EXAMINATION IN HORTICULTURE, 1899.

The Annual Examination in the Principles and Practice of Horticulture was held on April 11: 165 papers were sent in.

Three hundred marks were allotted as a maximum, and all candidates who obtained 200 marks and upwards were placed in the first class. The total number was 80, or 48·4 per cent.

The highest number of marks (285) was awarded to Mr. Harrington H. Eaton, from the County Technical School, Stafford.

Those who secured 150 and less than 200 marks were placed in the second class. The number was 50, or 30·3 per cent.

Those who obtained 100 and upwards were ranked in the third class. The number was 30, or 18·1 per cent.

Five candidates, obtaining less than 100 marks, were not placed.

Comparing the results with those of the last two years, the entry has fallen from 190 (in 1898) to 165, the percentages of the number in each class being as follows:—

	1897 (184).	1898 (190).	1899 (165).
First class	48·3	45·7	48·4
Second class	29·8	32·6	30·3
Third class	15·2	19·0	18·1
Not classed	6·5	2·6	3·0

The answers were, on the whole, again very satisfactorily given, no very serious mistakes occurring anywhere. The purely botanical questions dealing with the structure and classification of flowers were generally avoided; but the physiological questions were mostly chosen, and were well answered.

It is very gratifying to report that there is again a general improvement in the department of Practical Horticulture. The candidates have more fully described the minor details; this is important. Candidates should also realise that it is only by grasping the full meaning of the questions that they may expect to obtain the highest honours. Some candidates wandered from the question and answered what was not in it, and in this way wasted time which might have been of much value near the close of the examination. These were exceptions, but it is well to allude to them. *Geo. Henslow and Jas. Douglas, Examiners.*

SCOTTISH HORTICULTURAL ASSOCIATION.

The members of the above Society made a visit to The Glen, Innerleithen, on May 27, by kind permission of Sir Chas. Tennant, a great patron of gardening. The Association, mustered by its able Secretary, Mr. R. Laird, and its genial Vice-president, Mr. Todd, was conveyed in two corridor carriages to Peebles. From thence four brakes drove the Association through Tweeddale, viâ Innerleithen to The Glen. It was represented by some sixty or seventy members and friends.

The Queen's weather on Saturday 27, being our first May-day in the North this year, the perfect arrangements and management, and the charms of Nature and art, of The Glen itself, made this one of the pleasantest and instructive outings yet held by this flourishing centre of light and leading in horticulture.

Mr. Todd's thoughtful distribution of fruit on the journey also added greatly to the comfort of the members.

Mr. McIntyre, the able head gardener, who has moulded and managed the beautiful gardens for a score or more of years, received the party at the front door, and proved a most instructive and interesting guide

The art treasures and the chief rooms in the mansion were also open to the party, under the direction of the head housekeeper and Mr. McIntyre.

Before leaving, the party were mustered in front of the fine mansion by Mr. Laird, while Mr. Todd, in his usual happy manner, proposed the warmest thanks of the Association to Sir Charles Tennant, Mr. McIntyre, and the housekeeper, amid ringing cheers.

Mr. McIntyre briefly returned thanks, expressing his pleasure in seeing so many of his friends around him, and saying how pleased Sir Charles would have been to welcome the Association had he not been in London. *D. T. F.*

KIDDERMINSTER AND DISTRICT HORTICULTURAL.

June 14.—The usual monthly meeting of this newly-formed Society, which now numbers over 150 members, was held on the above date, when a paper on the "Cultivation of border and Souvenir de la Malmaison Carnations" was given by Mr. W. H. Wilson of Moor Hall, Stourport, under the chairmanship of Rowland Hill, Esq., of The Firs, a Vice-President of the Society.

Mr. Wilson's lecture was very instructive, and contained valuable hints on the growth and general treatment of this lovely flower. During the evening the members arranged to visit the gardens of Impney, Westwood, and the Experimental Gardens at Droitwich, on Saturday, the 24th inst. *T. J. R.*

ROYAL BOTANIC.

June 21.—What is known as the Annual Floral Fête was celebrated in the Royal Botanic Society's Gardens, at Regent's Park, on Wednesday last, and from the horticultural point of view the event was not even a moderate success.

There was plenty of diversion offered to visitors in the shape of a Maypole dance, a pastoral play on the greensward, and high class military music. The gardens were also gaily illuminated in the evening.

The only exhibits of a horticultural character were made by Messrs. Barr & Sons, King Street, Covent Garden, London; A. W. Young & Co., Stevenage; Mr. J. Prewett, Rayleigh (table decorations); and Mr. W. J. Piper, Uckfield, who had some blooms of his new Rose Sunrise.

Messrs. Barr & Sons' exhibit contained a fine lot of varieties of Iris Hispanica, and other species, also Moutan and other Pæonies; and amongst hardy perennial flowers we noticed Campanula persiciflora alba grandiceps, Heuchera sanguinea, Gladiolus Byzantinus, Shirley Poppies, &c.

The exhibition of Rhododendrons, made by Messrs. Jno. Waterer & Co., see p. 411, were a greater attraction than anything connected specially with the floral fête.

Double Petunia.—Mr. Dyer, of Forest Gate, sends us two flowers of Petunia in which the calyx and corolla are normal, and with the usual five stamens. In addition the centre of the flower is filled up by a prolongation of the axis bearing numerous stamens, and a pistil with style and stigma. It seems as if the flower had started as a double flower, but altered its mind (if we may so say), and produced stamens instead of petals.

ENQUIRY.

A correspondent, "A. W. C.," would be thankful if any fellow readers of the *Gardeners' Chronicle* would kindly advise him in reference to the following matter. During the early morning and in the evening the garden is infested by swarms of very small midges, which are a positive nuisance to everybody, puncturing the skin and causing intense itching, and on some persons, including himself, raising small pustules. His employer says that instead of it being a pleasure to be out in the gardens at such times, it is a perfect misery. He says that the ground lies rather low, and there are some large trees in and around it, besides a rather wide brook running through it. Various methods have been tried, but without success.

ANSWERS TO CORRESPONDENTS.

Beetle Injurious to the stems of Asparagus: *G. Ringham.* The beetles sent are Crioceris asparagi—from their small size are very difficult to discover and destroy. But they may be shaken from the stems on to white cloths, caught and destroyed. In the autumn the decaying stems should be burnt, as the female lays her eggs upon the branches; and by mixing a little dry litter with the refuse it might be burnt on the beds, thus doing away with the risk of dropping eggs on to the soil in other parts of the garden, and destroying eggs that might otherwise be left on the beds. The insect was figured in our issue for January 8, 1870, p. 44.

Catanga: *S. W.* The name is perhaps meant to be synonymous with Cananga, of which there are three species noted in the *Index Kewensis*, all tropical. We should think the gardeners were amusing themselves at your expense, these plants not being suitable for bedding-out purposes.

Celery-mining Fly-grub: *F. S.* Carefully examine the plants almost daily, and kill all grubs seen to be mining by nipping them with the thumb-nail. Apply a quassia-wash, made with soaking ½ lb. of quassia-chips for a few days in soapsuds. It may kill the fly, and it will certainly render the leaves distasteful to it.

Clematis Diseased: *G. H.* The foliage and twigs show the presence of a fungus, which, by its mode of attack, would account for the dying-back complained of. The fungus (probably Dicoccus uniseptatum, of the late M. J. Berkeley), is present on the foliage, and in patches sunk into the stems. It will be best treated after growth is over for the season. Cut back as far as you safely can, and burn all the prunings. Wash the stems left with some strong adhesive mixture; the following recipe is used for washing stems in winter where fungi are being treated: Place 4 lb. of sulphur and 4 lb. of lime in a pan, with about 4 gallons of water, and boil slowly, stirring meanwhile, till a yellow paste is left; dissolve ½ lb. of sulphate of copper in some hot water in a wooden vessel, and add to it 1 lb. of slaked lime; mix the whole together and obtain a thick paste. When used for washing stems, a pound of the paste is mixed with every 2 gallons of hot water, and is applied lukewarm. If it be syringed on, rather more water is necessary. This may be applied two or three times during the resting season of the plant; but before the buds unfold, a spraying with a clear fungicide like potassium sulphide (½ oz. in each gallon of water), would help to wash off excess of adhering sulphur and lime. When applying the sulphur-lime mixture, it would be well to prevent much of it soaking into the soil amongst the roots. *W. G. S., Leeds.*

Edible and Poisonous Fungi of Japan: *Boston, U.S.A.* We do not know where the Japanese book on this subject is published; we have given the title of the book, its nature, and the author's name. An importer of Japanese books or manufactures would probably be able to get it for you.

Fungus: *G. Barham.* The Stinkhorn—Phallus impudicus, common in dry places in peaty, sandy soil.

Gooseberries Diseased: *A. D. & S.* A case of Gooseberry mildew (Microsphæra grossulariæ). With the berries in the condition sent, it is now too late to treat the disease on this year's crop, because Bordeaux Mixture or sulphur or any fungicide will probably stain the fruit, or, at least render it hardly fit for the market. All diseased leaves, berries, and twigs, should be removed and burnt. Where the bushes are very bad, we should not try to save the fruit, but start spraying at once with Bordeaux Mixture, or thoroughly dusting the bushes with flowers-of-sulphur; this will prevent the fungus spreading, and prepare the way for next season. A spraying with weak potassium sulphide solution (½ oz. in each gallon of water) would check the disease, and allow the fruit to be used, although it is never advisable to use fungicides on fruit nearly ready for market. The treatment for this mildew, as well as for the Gooseberry-rust is to spray at intervals with Bordeaux Mixture, Strawsonite, or potassium sulphide. The first spraying is done in spring before the buds open; it should not be omitted, and every part of the bush be wetted. After blossoming, spray again with any of the same solutions. Two or three weeks later, spray with potassium sulphide only. This course has been tried and found quite effective; if it were systematically followed by all growers, we should hear little of either of above diseases. *W. G. S., Leeds.*

"Kew Bulletin": *Forest Hill.* We believe this publication was first issued in its present form in 1887.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—G. W. C.* Richardia Rehmanni.—*E. T.* The flowers sent are those of a form of Phyllocactus crenatus, probably, of which there are many.—*A. M.* Hyacinthus comosus. — *Young Gardener.* 1, Campanula muralis; 2, Helianthemum vulgare var.; 3, Veronica sp.; 4, Helianthemum vulgare; 5, Linum grandiflorum: 6, Allium Moly.—*J. M.* 1, Buddleia globosa; 2, Heuchera sanguinea.—*F. W. W.* Abies concolor.—*A. B. S.* Silene nutans, a Salvia, a Cynoglossum, and a Primulaceous plant in fruit. This is the best we can do for you, as the specimens were quite withered. —*Slaymaker & Co.* Araujia (Schubertia) graveolens, see figure in *Gardeners' Chronicle*, September 8, 1888, p. 271.—*W. H. H.* Epidendrum alatum.—*J. K.* 1, Prunus Padus; 2, Taxodium distichum var. pendula; 3, Valeriana near officinalis.—*A. J.* 1, Saxifraga longifolia; 2, Gaultheria Shallon; 3, Veronica longifolia subsessilis.—*W. B.* Eriophorum polystachyum, the so-called Cotton-grass.—*W. S.* The Rose is Mrs. W. J. Grant.—*L. R. W.* 1, Scilla peruviana; 2, Thalictrum alpinum; 3, Erigeron speciosus; 4, Campanula Trachelium; 5, Potentilla, no flowers; 6, Lychnis chalcedonica; 7, an Eryngium; 8, Achillea millefolium; 9, not recognised; 10, Polygonum Brunonis. Why not send better specimens, and not more than six at a time?—*A. S.* Pentstemon ovatus.—*W. M.* The variegated form of the Gout-weed, Ægopodium podagraria.

Place of Business: *Scot.* You must excuse us for not giving an opinion on so serious a matter as a choice of locality to begin business, when you have no experience. Neither can we tell you the relative amount of profit obtainable from from pot-plants or fruits. It depends on so many circumstances. Get an estimate from some responsible cultivator. The cost of span-roofed houses depends on their width, height, the nature of the side-walls, style of ventilation, weight of glass, dimensions of sash, bars, and other items, but speaking roughly, they could be built for 15s. per foot run, all included except the heating apparatus. But you should obtain estimates from a few firms.

Pruning: *E. W. B.* The best book on the subject, both as regards principles and practice, is Bailey's *The Pruning Book*, published by Macmillan & Co.

Rust on Begonia leaves: *A. P.* Apply sulphide of potassium, ½ an oz. in one gallon of rain-water; or plunge them in weak tobacco-water for a few minutes. Very badly-affected leaves should be cut off the plant and burnt.

Tomato Fungus: *C. J.* The leaves are attacked with a rust, Cladosporium Lycopersi. Burn the affected leaves, and spray the plant with sulphide of potassium, ½ oz. to 1 gallon of water.

Communications Received.—M. B.—L. A.—H. J. H.—T. C. R. J. L.—C. C. H.—J. O'B.—A. G.—D. T. F.—D. Macintosh. —E. Webb & Sons.—C. W.—G. Paul.—T. Coomber.—W. S.—T. J. R. J. O'B.—R. D.—W. J. B.—A. H.—S. A.—R. P. B. —Gt. Van Waveren & Kruijff.—R. W. A., Johannesburg.—W. G. S.—D. T. F.—C. Rea.—W. H. W.—J. E. R.—W. A.—J. Carter & Co.—G. B. & Sons.—B. G.

Specimens and Photographs Received with Thanks—M. Buysmann (quite withered).—J. O'B.—G. H.

(*For Markets and Weather, see p. viii.*)

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